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USSR Report

ECONOMIC AFFAIRS

No. 989

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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

FUTURE DIRECTIONS FOR DEVELOPMENT OF ECONOMICS

New Five-Year Plan

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 5, Sep-Oct 81 pp 837-846

/Article: "The Tasks of Economic Science During the New Five-Year Plan"/

/Text/ The 26th CPSU Congress, which outlined an imposing program of the building of communism, devoted particular attention to the tasks of the development of Soviet science.

The Annual General Meeting of the USSR Academy of Sciences, which was held in Moscow on 18-20 March 1981, was devoted to the analysis of the means of accomplishing these tasks. In opening it, President of the USSR Academy of Sciences Academician A. P. Aleksandrov indicated in the opening address that the efforts of scientists should promote the more efficient use of the material and financial resources of the country. The Accountability Report, which General Secretary of the CPSU Central Committee Comrade L. I. Brezhnev delivered, the Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990, on the draft of which Chairman of the USSR Council of Ministers Comrade N. A. Tikhonov reported, and the decisions of the congress should become the basis for their activity. The steps, which academic science should take to fulfill the plans of the congress, have to be defined concretely at the General Meeting, in the departments and at the institutes.

Vice President of the USSR Academy of Sciences Academician P. N. Fedoseyev delivered the extensive report "The 26th CPSU Congress on the Tasks of Science During the New Five-Year Plan." He noted that the main tasks of the new five-year plan and the entire coming decade can be accomplished only along the path of the intensification of social production and the increase of the efficiency and quality of work, the acceleration of scientific and technical progress, the increase of labor productivity, the social and labor activeness of the Soviet people. Here it is possible to distinguish two decisive directions. The first is the utmost and strict economy, the more efficient use of materials, power and so forth. The second is the development of more perfect, productive and economical machines, automatic systems and efficient technology.

The speaker recalled the words of Comrade L. I. Brezhnev concerning the fact that "the building of the new society without science is simply inconceivable" ("Materialy XXVI s"yezda KPSS" /Materials of the 26th CPSU Congress/, Moscow, Politizdat,

1981, p 42). The congress indicated the need to bring all the sectors of the national economy up to the leading achievements of science and technology. This aim is a clear definition of the historic task of the fundamental combination of the achievements of the scientific and technical revolution with the advantages of socialism.

Academician P. S. Fedoseyev emphasized that under the difficult conditions of the 1980's it is impossible to successfully develop the economy and solve major social problems without the most active and direct involvement of science. "The country is in extreme need for the efforts of 'large-scale science,' along with the elaboration of theoretical problems, to be concentrated to a greater extent on the solution of key national economic questions and on discoveries which are capable of making truly revolutionary changes in production" ("Materialy XXVI s"yezda KPSS," pp 42-43).

Unfortunately, many difficulties are arising at the stage of the realization of the achievements of science and the introduction of technical innovations in mass production. The Soviet Union has enriched the world with discoveries which predetermine the radical improvement of equipment and production technology, but in a number of instances our country lags in the time and scale of their application. Under the present conditions of the development of the economy of our country enterprises should be vitally interested in the use of the achievements of science and technology. The central planning and economic organs and the USSR State Committee for Science and Technology should "clearly formulate the practical tasks which require the maximum attention of scientists.... At the same time science itself should be a constant 'disturber of the peace,' showing in what sections stagnation and lagging have been noted, where the present level of knowledge makes it possible to advance more rapidly and more successfully. Thought must be given to how to transform this work into an integral part of the management mechanism" ("Materialy XXVI s"yezda KPSS," p 43).

The assignment given by the congress to the USSR Academy of Sciences, the USSR State Committee for Science and Technology and the ministries to perform work on the evaluation of the scientific and design base of various sectors of the economy and to provide suggestions on the regrouping of forces should be considered exceptionally important.

At the 26th CPSU Congress it was noted that the most urgent, decisive area today is the introduction of scientific discoveries and inventions. As is known, the USSR Academy of Sciences is seeking new ways and means to introduce the results of research in the national economy. New forms of cooperation of the academic institutes with sectorial institutes and with industrial enterprises and organizations are emerging during the work. The improvement of the contact of science with production should be in the sphere of constant attention of the USSR Academy of Sciences, its departments and institutes.

Effective forms of the combination of science and production have been found in the past two decades. The elaboration of comprehensive goal programs will make it possible, as was emphasized at the congress, to unite the efforts of scientists, production workers and workers of the ministries for the solution of the most important scientific and technical problems and to shorten the period of the development and assimilation of new technical equipment.

Scientific production associations are one of the effective forms of the integration of science and production. The experience of the best of them shows that they make it possible to introduce scientific achievements more rapidly and to solve sectorial and intersectorial problems more successfully. However, the economic aspects and questions of the cooperation of the scientific, planning and design and production subdivisions of associations have not yet been completely resolved. The USSR Academy of Sciences and the USSR State Committee for Science and Technology jointly with the ministries have to examine the question of the improvement of the organization of their work and to determine the mechanism of the transfer of the results of basic research to practice. The institutes of the Economics Department of the USSR Academy of Sciences and the Institute of State and Law of the USSR Academy of Sciences, in turn, should give practical scientific methods assistance to the USSR State Committee for Science and Technology, the USSR Ministry of Finance and sectorial ministries in the improvement of the economic and legal mechanism of the functioning of the scientific production association.

The successful organization of scientific research in many ways depends on efficient and effective coordination. The 25th CPSU Congress gave the USSR Academy of Sciences a responsible assignment--to coordinate all the scientific work in the country. The thematic sessions of the General Meeting of the USSR Academy of Sciences played an important role on this level: in December 1978--with the participation of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin and the USSR Ministry of Agriculture; in November 1980--jointly with the USSR Academy of Medical Sciences; in December 1979--on the tasks of science in the solution of urgent national economic problems. The work of this nature should be continued and improved.

Measures on the further development of scientific research at higher educational institutions and on the broadening of the joint developments of academic institutes and higher educational institutions are outlined in the decision of the Presidium of the USSR Academy of Sciences and the Collegium of the USSR Ministry of Higher and Secondary Specialized Education. The 26th CPSU Congress indicated the need to use the scientific potential of the higher school more effectively, to reduce the gap in the material supply of academic science and the science of higher educational institutions, to improve the training and increase the skills of scientists and science teachers.

Academician P. N. Fedoseyev emphasized that the policy proclaimed by the party of an intensive path of development has a bearing not only on production, but also on science. Two interrelated problems--the intensification of scientific research and the assurance of priority in the decisive directions--are now becoming especially urgent. Intensification presumes, in particular, the improvement of the technical equipment of science and the more extensive use of computers. The decisions of the congress call for the strengthening of the experimental and pilot production base of scientific research and planning and design organizations. The concentration of scientific forces and resources on the main directions, on which the progress of science and the solution of the key problems of socioeconomic development depend, should be ensured. In other words, the entire system of scientific research should be "considerably more flexible and mobile and intolerant of unproductive laboratories and institutes" and should "further increase the role and responsibility of the USSR Academy of Sciences and improve the organization of the entire system of scientific research" ("Materialy XXVI s"yezda KPSS," p 42). In this connection it

is necessary to constantly improve the network and structure of scientific institutions in conformity with the needs of scientific and technical progress, to determine in good time and change the direction of research.

Scientists of the country also actively participated in the discussion of the draft of the Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990. A large number of remarks and additions, which were suggested by the USSR Academy of Sciences, were taken into account in the final text of this document. The importance of the leading development of basic research, the need for the assurance of the elaboration and implementation of a comprehensive program of scientific and technical progress, the strengthening of the cooperation of the social, natural and technical sciences and so on are emphasized in it.

Examining the most important tasks of the various fields of knowledge in light of the decisions of the congress, Academician P. N. Fedoseyev indicated, in particular, the importance of the development of mathematics and the increase of the impact from the introduction of its results for applied purposes. One of the key problems of scientific and technical progress is the improvement of computer hardware, with which an entire set of problems of automation and control is connected.

The speaker also noted the research in the area of the efficient use and protection of the land and water resources of the country, the chemicalization, mechanization, electrification and automation of agriculture. Scientists of the USSR Academy of Sciences are participating in the elaboration of the USSR food program. The performance of the research connected with the implementation of this program is the most important task of the academic scientific institutions.

Academician P. N. Fedoseyev recalled the statement of Comrade L. I. Brezhnev that a closer interrelationship between the economy and the sociopolitical progress of society is a characteristic feature of mature socialism. But this requires the further intensive development of the social sciences. In speaking about the tasks of economists, the speaker noted that the studies of the theoretical questions and prospects of mature socialism, the creation of the material and technical base of communism, the improvement of production relations and the increase of the efficiency of social production for the obtaining of the highest end national economic results should be continued. The elaboration of means of the further improvement of the management of the economy, the adoption of advanced methods of management, the more complete combination of central management with the economic independence and initiative of enterprises, the more precise coordination of sectorial and territorial planning and management is required. It is necessary to expedite the work on the creation of an organizationally coordinated mechanism of comprehensive goal planning, which eliminates departmental barriers and guarantees a high level of responsibility for the fulfillment of the outlined measures by specific ministries and departments. The study of the experience of the fraternal socialist countries, the prospects of the strengthening of socialist integration and the development of the international socialist division of labor must be stepped up considerably. The complication of world economic conditions, the increasing interdependence and mutual influence of economic and political processes and the persistent aspiration of aggressive circles to intensify the confrontation and military hostility in international relations are making very important the thorough and concrete analysis of various aspects of the development of the world economy and the economic system of the capitalist and developing countries, the further elaboration of the methodology and methods of forecasting socioeconomic and political trends in the world.

Social scientists should bear in mind the decisions of the 26th CPSU Congress on the making of the necessary changes in and additions to the CPSU Program.

A vital task of social scientists is to step up the criticism of anticommunism and bourgeois and revisionist conceptions of social development and to expose the vain attempts of the falsifiers of Marxism-Leninism. The scientific analysis and promotion of the advantages of socialism and the socialist way of life and the elaboration of philosophical principles and methods of ideological work are necessary.

Cooperation with foreign scientific institutions and first of all with scientists of the socialist countries can serve as a substantial reserve in the accomplishment of the tasks set for Soviet science. The use of the advantages of the international division of labor, the aggregate of the scientific and technical potential of the countries of the socialist community and the organization of joint research on urgent problems are of great importance both for our state and for other socialist states. It is necessary henceforth to develop cooperation, to elaborate and implement joint programs on the natural and social sciences.

On the basis of the principles of the peaceful coexistence of states with different social systems, the making of scientific and technical contacts with capitalist countries is stipulated in the decisions of the party congress. Scientific cooperation will be developed on the basis of existing agreements, as well as in the elaboration of global scientific problems, such as environmental protection, the development of space and others.

In the discussion of the report the scientists--representatives of various fields of knowledge--spoke about the most important directions of their own science, which can make an important contribution to the solution of the problems of building communism. Academician N. P. Fedorenko, academician secretary of the Economics Department of the USSR Academy of Sciences, who dwelled on the most significant questions of economic theory and practice of those disucssed at the Annual General Meeting of the Economics Department of the USSR Academy of Sciences, spoke on behalf of the economists.*

The set of problems facing Soviet economics scholars during the next decade are outlined in the document approved by the Annual General Meeting of the Economics Department of the USSR Academy of Sciences--"The Main Directions of the Work of the Economics Department of the USSR Academy of Sciences on the Development of Economic Science in Light of the Decisions of the 26th CPSU Congress."

It is noted in it, in particular, that in conformity with the principles and tasks, which were advanced by General Secretary of the CPSU Central Committee Comrade L. I. Brezhnev in the Accountability Report of the CPSU Central Committee to the 26th party congress, the Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990 and other materials of the 26th CPSU Congress it is necessary to concentrate the development of economic science first of all on the elaboration of the following comprehensive programs: "The Economic Problems of Mature Socialism and the Laws of Its Development Into Communism"; "The Elaboration of the Theory and Methods of Planning of the Socialist Economy"; "The Program of Research on Problems of Demography"; "Regional Economics and the Distribution of

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*See EKONOMIKA I MATEMATICHESKIYE METODY, No 4, 1981.

the Productive Forces of the USSR"; "The Laws of the Development of the World Socialist Economy, the Problems of Socialist Economic Integration and the Development of Long-Term Economic Relations of the USSR With Socialist Countries"; "The Laws and Trends of the Development of the Economic System of the Capitalist and Developing Countries and the World Capitalist Economy, the Problems of the Foreign Economic Relations of the Soviet Union With These Countries." In light of the decisions of the 26th party congress the elaboration of a new program--"The Theoretical Problems of Production Efficiency and the Intensification of Production"--has to be organized.

In conformity with this it is proposed to concentrate the efforts of scientific institutions on the study of the following basic problems.

In the area of /the economy of mature socialism and the laws of its development into a communist economy/ /in italics/:

the methodological problems of the political economy of socialism; the forms of the use of the principles of materialistic dialectics in scientific research, the mechanism of the effect and the mechanism of the use of economic laws in practical economic work; questions of the interaction of productive forces and socialist production relations; the interrelations of political economy with other economic sciences, the assurance of a comprehensive nature of research; the connection of the analysis of production relations, economic laws and categories with the needs of practice; the motive contradictions of social production, the specific nature and unity of interests in the mature socialist society; the elaboration of the means and forms of the enhancement of the ideological role of the political economy of socialism;

the economic problems of mature socialism, its advantages and increased potentials, the means of their realization in the practice of building communism, the general laws and features of the building of mature socialism in the countries of the socialist community; the structure of the material and technical base of mature socialism with allowance made for the latest achievements of scientific and technical progress and the means of its development into the material and technical base of communism; the socioeconomic problems of the scientific and technical revolution, the changes in the content and nature of labor, the elimination of the socioeconomic differences in labor; the economic questions of demography in the USSR and individual economic regions, the elaboration of recommendations on the implementation of an effective demographic policy;

the problems of expanded socialist reproduction; the preparation of recommendations on the optimization of the ratio of the growth rates of subdivisions I and II, the accumulation and consumption funds in the long-range future; the problems of the socialization of socialist production and the improvement of production relations; the relations of property, the means of development of its state and cooperative-kolkhoz forms, the overcoming of the substantial differences between mental and physical labor;

theoretical questions of the system of needs in the mature socialist society, their quantitative expression and comparison by the method of the use of the category of social utility; the drawing up of recommendations on the improvement of distributive relations with allowance made for both the increase of the efficiency and intensification of production and social tasks;

the economic principles of the socialist way of life, the questions of the all-round and harmonious development of the individual, the further increase of the creative activeness of the workers, material and moral stimulation, the formation of a communist attitude toward labor, the development of socialist competition;

the preparation of the work "Ekonomicheskiy stroy sotsializma" /The Economic System of Socialism/, a work on the history of the political economy of socialism, new editions of political economy textbooks.

In the area of /the planned management of the national economy as a unified complex/ /in italics/:

the problems of the optimal planning of the socialist economy, theoretical questions and procedural recommendations on the combining of various plans into a single system, the coordination of the sectorial and territorial, physical and value aspects of economic and social planning;

the generalization of the experience of the implementation of the measures, which were elaborated by the CPSU Central Committee and the Soviet Government, on the improvement of the economic mechanism and the strengthening of its influence on increasing production efficiency and work quality, recommendations on the increase of the orientation of the entire economic mechanism toward the end national economic results; the substantiation of practical suggestions on the efficient combination of centralized planning with the development of democratic principles in the management of the economy; economic problems of the integrated management of scientific and technical progress; theoretical questions of planned pricing;

the completion of the elaboration of a set of methods of long-term and intermediate-term forecasting as a tool of the formation of a long-range conception of the development of the national economy and of a comprehensive program of scientific and technical progress; the formulation of a long-term conception of the balance of the material and financial-money flows in the national economy and of the socioeconomic sections of the comprehensive program of scientific and technical progress; the development of a set of mathematical economics models of long-range and current planning of the development of the national economy and recommendations on their inclusion in the automated system of planning estimates;

the methodology of the substantiation of comprehensive goal programs, their coordination with state plans of economic and social development, the methods of the development and implementation of programs on the solution of socioeconomic, scientific and technical problems; the preparation of scientific materials for the most important state comprehensive goal programs;

theoretical questions of the strengthening of the interrelationship of various levers of the economic mechanism, the substantiation of recommendations on the improvement of cost accounting, pricing, the financial and credit system, the fee for the use of production resources, the mechanism of the control of violations of planning and contractual discipline;

theoretical questions of the distribution of productive forces and the creation of methods of the optimization of the development and distribution of production, the elaboration of the large-scale Sibir', Ural and Dal'niy Vostok programs, the programs of the development of the Nonchernozem Zone and the zone of the economic

development of the Baykal-Amur Railway Line, the conception of the General Plan of the Development and Distribution of the Productive Forces of the Country;

the improvement of the organizational structure of the management of the unified national economic complex, questions of the development of systems of the management of groups of similar sectors and large territorial production complexes, the development of methods of the improvement of the sectorial planning and management of production; the problems of the national economic agro-industrial complex, the elaboration of the procedural principles of the food program; the mechanism of the formation and use of reserves, the management of production stocks in the unified national economic complex;

the economics of regions, the methods of the forecasting and planning of their development, questions of the socioeconomic aspects of the rationalization of the system of the settlement, the planning and the management of the development of large cities as centers of regional national economic complexes; the drawing up of suggestions on the economic aspects of the management of the use of nature and environmental protection;

the generalization of the work experience of production associations and the improvement of the economic mechanism of their operation; questions of the intensification of the cooperation, the specialization and the optimization of the scale of production, the planning and management of the production operations of associations, the improvement of internal cost accounting;

the formation of the technical information base of the management of the unified national economic complex; the analysis of the experience of the development of the network of automated systems of the management of various links of social production, the means of the increase of their efficiency and combination into a unified statewide data gathering and processing system;

the organization of socialist competition, the forms and methods of its connection with the practice of economic management, the increase of its effectiveness;

the methodological problems of statistics, the improvement of the system of statistical indicators and the methods of analysis in connection with the needs of the development of the economic mechanism, the tightening up of the policy of economy and thrift in all the links of the national economy;

the preparation of a series of monographs on questions of the system of the optimal planning and management of social production on the basis of the use of mathematical economics methods and electronic computer hardware, on problems of labor and the management of the socialist economy as a unified national economic complex.

In the area of /the increase of production efficiency/ /in italics/:

the theoretical principles, criteria and system of indicators of the socioeconomic efficiency of social production and its individual links; the problem of the changeover of the economy to the path of intensive development; recommendations on the intensification of the use of the production potential, scientific and technical progress, capital investments and natural resources, as well as on the improvement of the use of manpower resources, the increase of the quality of products and work,

the control of losses of raw materials, materials and finished products, the efficiency of foreign trade;

the most effective means of overcoming the factors which complicate the economic development of the country during the 1980's: the decline of the growth of manpower resources, the increase of expenditures in connection with the development of the east and the north, the expenditures on environmental protection, the need for the basic reorganization of a number of old enterprises, the development of the system of roads, the improvement of the operation of transportation and communications; in particular, the preparation of recommendations on the optimization of the fuel and power balance, the increase of the efficiency of the extractive industry, the most effective forms of cooperation of the fraternal socialist countries in the solution of energy problems;

the means of increasing the efficiency of the use of the scientific and technical potential of the USSR, suggestions on the basic combination of the work of scientific research and design organizations with production;

the preparation of a combined method of the measurement of the effectiveness of economic measures, which is called upon to become the unified methodological and procedural basis for the evaluation of the effectiveness of capital investments and scientific and technical progress, organizational, economic and other management decisions.

In the study of /the world economic system/ /in italics/ there are distinguished, in particular:

the peculiarities of the effect of economic laws in the world socialist economic system, the urgent problems of the socioeconomic and political development of the socialist countries; the generalization of the experience of the fraternal countries in the solution of the problems of the improvement of the economic mechanism and the intensification of production and in other areas of the building of socialism;

the improvement of the international mechanism of socialist economic integration, the planning and utilization of commodity-money relations, institutional tools, as well as the internal system of the management of the integrational process;

the role of the socialist system in the world economy, the relations of the socialist countries with developing and industrially developed capitalist countries;

the comprehensive study of the economic and sociopolitical problems of the liberated countries of Asia, Africa and Latin America;

new events in the world of capitalism and modern imperialism, its contradictions and trends of development under the conditions of the struggle of the two systems; the features of the aggravation of the general crisis of capitalism at the present stage; the problems connected with the scientific and technical revolution and the structural changes in the capitalist economic system;

the features of the reproduction of capital and the cycle at the present stage; the influence of scientific and technical progress on production efficiency in the main capitalist countries;

the conflicts between imperialists; the intensification of the struggle for markets, sources of raw materials and energy between the main imperialist powers; the problems of the world economy and international economic relations at the present stage;

the forecasting of the development of production, science and technology, internal social processes in the capitalist world and the possible changes in the international situation;

the study of the global problems of mankind--the prevention of thermonuclear war, the energy, raw material, food, demographic and ecology problem, the development of space and the ocean, the overcoming of the backwardness of the developing countries.

The criticism of bourgeois, revisionist and reformist theories of economic development and modern falsifications of Marxist-Leninist economic doctrine is indicated among the priority tasks on /the criticism of anti-Marxist concepts/ /in italics/.

In the area of /the organization of economic research and the training of scientists/ /in italics/ it is envisaged, in particular:

to make the necessary changes in the plans of scientific research for 1981-1985 of the institutes of the Economics Department of the USSR Academy of Sciences and the academies of sciences of the union republics in conformity with the principles and tasks, which were advanced by General Secretary of the CPSU Central Committee Comrade L. I. Brezhnev in the Accountability Report of the CPSU Central Committee to the 26th party congress, with the decisions of the 26th CPSU Congress, to concentrate efforts on the conducting of basic and applied research for the assurance of the solution of the most important economic and social problems of Soviet society;

to increase the role and responsibility of the Economics Department of the USSR Academy of Sciences, the scientific councils for comprehensive problems, the institutes of the USSR Academy of Sciences and the academies of the union republics in the coordination of economic research, the strengthening of the relations with economic planning organs, ministries, production associations and enterprises;

the Bureau of the Economics Department of the USSR Academy of Sciences is to review regularly the activity and to give assistance to peripheral scientific institutions, to use in practice field sessions in the union republics and most important regions of the RSFSR in order to strengthen the relations with the local scientific forces and to involve them in the solution of the general problems of economic science; to improve the planning of scientific research, to use more extensively the methods of goal program planning, to increase the responsibility of the directors of scientific institutions and all executives for the fulfillment of the plans of research and the quality of the scientific works and recommendations on questions of the development of the socialist economic system and the improvement of the economic mechanism; to determine and change in due time the direction of research and development, the organizational structure of scientific institutions, to close unproductive divisions and laboratories;

to expand the practice of joint research of the institutes of the USSR Academy of Sciences and the academies of sciences of the union republics with the scientific institutions of the sectors of the national economy; to make more use of the potential of the science of higher educational institutions, to increase the

coordination of research on procedural questions of the teaching of political economy; to develop the creative cooperation of economists with representatives of the other social, natural and technical sciences;

to increase the role of the scientific councils of the Economics Department and the journals of the USSR Academy of Sciences in the discussion of urgent debatable questions of economic theory and in the preparation of recommendations on the solution of the problems of the building of the economy;

to ensure the broadening and improvement of the training, further training and certification of specialists, especially political economists and more highly skilled specialists, to extend the training of staffs of economics scholars for Siberia, the Far East, the European north, as well as for the union republics; to increase the demands on the theoretical level and practical importance of dissertations;

to step up the work of economics scholars on the promotion of economic knowledge;

to expand the cooperation of the institutes of the Economics Department of the USSR Academy of Sciences and the union republics with scientific institutions of the fraternal socialist countries in the study of the basic problems and the preparation of collective works; to increase the activeness of Soviet economics scholars in the work of international theoretical conferences and symposia, to strengthen the relations with progressive scholars of the capitalist and developing countries.

Soviet economics scholars will exert every effort to implement the historic decisions of the 26th CPSU Congress.

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Academy of Sciences

Moscow MIROVAYA EKONOMIKA I MEZHDUNARODNYYE OTNOSHENIYA in Russian No 8, Aug 81 pp 129-133

/Article: "The Main Directions of the Work of the Economics Department of the USSR Academy of Sciences on the Development of Economic Science in Light of the Decisions of the 26th CPSU Congress"/

/Text/ The Annual General Meeting of the Economics Department of the USSR Academy of Sciences was held on 16 March 1981. Academician N. Fedorenko, academician secretary of the department, delivered the report. The meeting adopted "The Main Directions of the Work of the Economics Department of the USSR Academy of Sciences on the Development of Economic Science in Light of the Decisions of the 26th CPSU Congress," which are published below.

By implementing the decisions of the 25th CPSU Congress, scientific research institutions made a significant contribution to the elaboration of economic questions of the concept of mature socialism and the more exact definition of the criteria and means of creating the material and technical base of communism in conformity with the present level of development of science and technology. The work on the socioeconomic section of the comprehensive program of scientific and technical

progress, the elaboration of the methodological aspects of the program of the development and distribution of productive forces, theoretical questions of the evaluation of production efficiency and methods of stimulating product quality is of great importance. Many developments of scientific institutions have been introduced in practice and have been widely reflected in the measures on the improvement of the economic mechanism.

Works were written, which analyze the experience of the development of the world socialist system and reveal the laws of the world revolutionary process. Important studies have been made of the present stage of the general crisis of capitalism, the development of state monopoly capitalism and the structural and technical changes in the capitalist economic system. The study of present international relations, the problems of the liberated countries and the means of increasing the effectiveness of USSR foreign economic relations was intensified.

At the same time the state of the research on a number of sections of economic science still does not meet the requirements of the practice of building communism. Scholastic theorizing, which is hindering the advancement of science, has still not been eliminated in the work of some institutes and their subdivisions. At the 26th CPSU Congress it was noted that many problems awaiting solution have accumulated in the political economy of socialism. "The tasks which life advances," General Secretary of the CPSU Central Committee L. I. Brezhnev emphasized, "require the development of the theory of economic science, its approximation of the needs of economic practice."

In light of the decisions of the 26th CPSU Congress the development of economic research should be subordinate to an even greater extent to the fulfillment of the tasks of the assurance of the steady progressive development of the national economy, the acceleration of scientific and technical progress and the increase of production efficiency, its changeover mainly to the intensive path of development. This requires the leading development of basic research and the increase of the fruitfulness of applied research.

In conformity with the principles and tasks, which were advanced by General Secretary of the CPSU Central Committee L. I. Brezhnev in the Accountability Report of the CPSU Central Committee to the 26th party congress, the Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990 and other materials of the 26th CPSU Congress it is necessary to concentrate the development of economic science first of all on the elaboration of the following comprehensive programs: "the economic problems of mature socialism and the laws of its development into communism"; "the elaboration of the theory and methods of planning of the socialist economy"; "the program of research on problems of demography"; "regional economics and the distribution of the productive forces of the USSR"; "the laws of the development of the world socialist economy, the problems of socialist economic integration and the development of long-term economic relations of the USSR with socialist countries"; "the laws and trends of the development of the economic system of the capitalist and developing countries and the world capitalist economy, the problems of the foreign economic relations of the Soviet Union with these countries." In light of the decisions of the 26th party congress the elaboration of the new program "the theoretical problems of production efficiency and the intensification of production" has to be organized.

In conformity with this the efforts of scientific institutions are to be concentrated on the study of the following basic problems.

1. In the Area of the Economy of Matural Socialism and the Laws of Its Development Into a Communist Economy

The methodological problems of the political economy of socialism: the forms of the use of the principles of materialistic dialectics in scientific research, the mechanism of the effect and the mechanism of the use of economic laws in practical economic work; questions of the interaction of productive forces and socialist production relations; the interrelations of political economy with other economic sciences, the provision of means of a comprehensive nature of research; the connection of the analysis of production relations, economic laws and categories with the needs of practice; the motive contradictions of social production, the specific nature and unity of interests in the mature socialist society, the elaboration of the means and forms of the enhancement of the ideological role of the political economy of socialism.

The economic problems of mature socialism, its advantages and increased potentials, the means of their realization in the practice of building communism, the general laws and features of the building of mature socialism in the countries of the socialism community. The structure of the material and technical base of mature socialism with allowance made for the latest achievements of scientific and technical progress and the means of its development into the material and technical base of communism. The socioeconomic problems of the scientific and technical revolution, the changes in the content and nature of labor, the elimination of the socioeconomic differences in labor. The economic questions of demography in the USSR and individual economic regions, the elaboration of recommendations on the implementation of an effective demographic policy.

The problems of expanded socialist reproduction. The preparation of recommendations on the optimization of the ratio of the growth rates of subdivisions I and II, the accumulation and consumption funds in the long-range future. The problems of the socialization of socialist production and the improvement of production relations: the relations of property, the means of development of its state and cooperative-kolkhoz forms, the overcoming of the substantial differences between mental and physical labor.

Theoretical questions of the system of needs in the mature socialist society, their quantitative expression and comparison by the method of the use of the cateogry of social utility. The drawing up of recommendations on the improvement of distributive relations with allowance made for both the increase of the efficiency and intensification of production and social tasks.

The economic principles of the socialist way of life, the questions of the allround and harmonious development of the individual, the further increase of the creative activeness of the workers, material and moral stimulation, the formation of a communist attitude toward labor, the development of socialist competition.

The preparation of the work "Ekonomicheskiy stroy sotsializma" /The Economic System of Socialism/, a work on the history of the political economy of socialism, new editions of political economy textbooks.

2. In the Area of the Planned Management of the National Economy as a Unified Complex

The problems of the optimal planning of the socialist economy, the elaboration of theoretical and methodological recommendations on the combining of various plans into a single system, the coordination of the sectorial and territorial, physical and value aspects of economic and social planning.

The generalization of the experience of the implementation of the measures, which were elaborated by the CPSU Central Committee and the Soviet Government, on the improvement of the economic mechanism and the strengthening of its influence on increasing production efficiency and work quality, the elaboration of recommendations on the increase of the orientation of the entire economic mechanism toward the end national economic results. The substantiation of practical suggestions on the efficient combination of centralized planning with the development of democratic principles in the management of the economy. Economic problems of the integrated management of scientific and technical progress. Theoretical questions of planned pricing.

The completion of the elaboration of a set of methods of long-term and intermediate-term forecasting as a tool of the formation of a long-range conception of the development of the national economy and of a comprehensive program of scientific and technical progress. The formulation of a long-term conception of the balance of the material and financial-money flows in the national economy; of the socioeconomic sections of the comprehensive program of scientific and technical progress. The development of a set of mathematical economics models of long-range and current planning of the development of the national economy and recommendations on their inclusion in the automated system of planning estimates.

The methodology of the substantiation of comprehensive goal programs, their coordination with state plans of economic and social development, the methods of the development and implementation of programs on the solution of socioeconomic, scientific and technical problems. The preparation of scientific materials for the most important state comprehensive goal programs.

Theoretical questions of the strengthening of the interrelationship of various levers of the economic mechanism, the substantiation of recommendations on the improvement of cost accounting, pricing, the financial and credit system, the fee for the use of production resources, the mechanism of the control of violations of planning and contractual discipline.

Theoretical questions of the distribution of productive forces and the creation of methods of the optimization of the development and distribution of production, the elaboration of the large-scale Sibir', Ural and Dal'niy Vostok programs, the programs of the development of the Nonchernozem Zone and the zone of the economic development of the Baykal-Amur Railway Line, the conception of the General Plan of the Development and Distribution of the Productive Forces of the Country.

The improvement of the organizational structure of the management of the unified national economic complex, questions of the development of systems of the management of groups of similar sectors and large territorial production complexes, the development of methods of the improvement of the sectorial planning and management

of production. The problems of the national economic agro-industrial complex, the elaboration of the procedural principles of the food program. The mechanism of the formation and use of reserves, the management of production stocks in the unified national economic complex.

The economics of regions, the methods of the forecasting and planning of their development, questions of the socioeconomic aspects of the rationalization of the system of the settlement, the planning and the management of the development of large cities as centers of regional national economic complexes. The drawing up of suggestions on the economic aspects of the management of the use of nature and environmental protection.

The generalization of the work experience of production associations and the improvement of the economic mechanism of their operation. Questions of the intensification of the cooperation, the specialization and the optimization of the scale of production, the planning and management of the production operations of associations, the improvement of internal cost accounting.

The formation of the technical information base of the management of the unified national economic complex. The analysis of the experience of the development of the network of automated systems of the management of various links of social production, the means of the increase of their efficiency and combination into a unified statewide data gathering and processing system.

The organization of socialist competition, the forms and methods of its connection with the practice of economic management, the increase of its effectiveness.

The methodological problems of statistics, the improvement of the system of statistical indicators and the methods of analysis in connection with the needs of the development of the economic mechanism, the tightening up of the policy of economy and thrift in all the links of the national economy.

The preparation of a series of monographs on questions of the system of the optimal planning and management of social production on the basis of the use of mathematical economics methods and electronic computer hardware, on problems of labor and the management of the socialist economy as a unified national economic complex.

3. In the Area of the Increase of Production Efficiency

The theoretical principles, criteria and system of indicators of the socioeconomic efficiency of social production and its individual links. The problem of the changeover of the economy to the path of intensive development. The elaboration of recommendations on the intensification of the use of the production potential, scientific and technical progress, capital investments and natural resources, as well as on the improvement of the use of manpower resources, the increase of the quality of products and work, the control of losses of raw materials, materials and finished products, the efficiency of foreign trade.

The search for the most effective means of overcoming the factors which complicate the economic development of the country during the 1980's: the decline of the growth of manpower resources, the increase of expenditures in connection with the development of the east and the north, the expenditures on environmental protection, the need for the basic reorganization of a number of other enterprises, the

development of the system of roads, the improvement of the operation of transportation and communications, in particular, the preparation of recommendations on the optimization of the fuel and power balance, the increase of the efficiency of the extractive industry, the most effective forms of cooperation of the fraternal socialist countries in the solution of energy problems.

The means of increasing the efficiency of the use of the scientific and technical potential of the USSR, suggestions on the basic combination of the work of scientific research and design organizations with production.

The preparation of a combined method of the measurement of the effectiveness of economic measures, which is called upon to become the unified methodological and procedural basis for the evaluation of the effectiveness of capital investments and scientific and technical progress, organizational, economic and other management decisions.

4. In the Study of the World Economic System

The economic and political aspects of the transition from capitalism to socialism under present conditions.

The world socialist economic system. The peculiarities of the effect of economic laws in the world socialist economic system, the urgent problems of the socioeconomic and political development of the socialist countries, the generalization of the experience of the fraternal countries in the solution of the problems of the improvement of the economic mechanism and the intensification of production and in other areas of the building of socialism.

The improvement of the international mechanism of socialist economic integration, the planning and utilization of commodity-money relations, institutional tools, as well as the internal system of the management of the integrational process.

The preparation of recommendations on the development of socialist economic integration under present conditions, including on the international concentration of socialist production, the development of coordinated means of scientific and technical development, the improvement of cooperation at the level of enterprises and associations, the cooperation and integration of countries with different levels of industrial development.

The study of the interaction of the economics, politics and ideology of the socialist countries at the present stage, the improvement of the political organization of society. The role of the socialist system in the world economy, the relations of the socialist countries with developing and industrially developed capitalist countries.

The preparation of the monograph "Mirovoye sotsialisticheskoye khozyaystvo (voprosy politicheskoy ekonomii)" /The World Socialist Economy (Problems of Political Economy)/ and the series of works "Ekonomika i politika zarubezhnykh stran sotsializma" /The Economics and Politics of Foreign Socialist Countries/.

Liberated countries. The comprehensive study of the economic and sociopolitical problems of the liberated countries of Asia, Africa and Latin America, their

increased role in world economics and politics, the laws of their development, first of all along the path of a socialist orientation.

The economic and political aspects of the relations of the countries of the socialist community with the liberated countries, the reorganization of international economic relations on a just, equal basis. The preparation of recommendations on the expansion of the mutually advantageous cooperation of the USSR with the liberated countries.

Modern capitalism and the problems of the world revolutionary process. New events in the world of capitalism and modern imperialism, its contradictions and trends of development under the conditions of the struggle of the two systems, the features of the aggravation of the general crisis of capitalism at the present stage. The problems connected with the scientific and technical revolution and the structural changes in the capitalist economic system.

The socioeconomic consequences of the increase of the role of the military-industrial complex in the domestic and foreign policy of the imperialist states. The influence of multinational corporations on the aggravation of the contradictions in the economics and politics of the imperialist countries. The features of the new forms of the monopolization of the economy and the contradictions of state-monopoly regulation.

The features of the reproduction of capital and the cycle at the present stage. The influence of scientific and technical progress on production efficiency in the main capitalist countries. The social and political consequences of the long-term growth of unemployment and inflation. The problems of the class and antimonopolistic struggle in the capitalist countries, the trends of the world revolutionary process.

The conflicts between imperialists; the intensification of the struggle for markets, sources of raw materials and energy between the main imperialist powers. The problems of the world economy and international economic relations at the present stage. The main trends of the development of international relations in connection with the policy of the socialist countries, which is aimed at peaceful coexistence and mutually advantageous cooperation with the capitalist states, at the continuation and intensification of detente. The assessment of the military-political situation in the world, the concrete study of the means of curbing the arms race and achieving real disarmament. The forecasting of the development of production, science and technology, internal social processes in the capitalist world and the possible changes in the international situation.

The study of the global problems of mankind--the prevention of thermonuclear war, the energy, raw material, food, demographic and ecology problem, the development of space and the ocean, the overcoming of the backwardness of the developing countries.

The preparation of the series of monographs "Global'nyye problemy sovremennosti i mirovoye razvitiye" /Global Problems of the Present and World Development/, the monographs "Sovremennaya vneshnyaya politika SShA" /Modern U.S. Foreign Policy/, "Sotsialisticheskaya orientatsiya i revolyutsionnyy protsess v Afrike" /The Socialist Orientation and Revolutionary Process in Africa/, the encyclopedic reference work "Latinskaya Amerika" /Latin America/ and other major collective works.

5. In the Area of the Criticism of Anti-Marxist Concepts

The problems of the increase of the role of the ideological struggle in the competition of the two social systems in connection with the aggravation of the contradictions of capitalism at the present stage.

The methodological questions of the criticism of anti-Marxist concepts, the methods of the ideological defense of capitalism, eclecticism, the slander of socialism, the exposure of the class-apologetic content of these theories. The criticism of bourgeois, revisionist and reformist conceptions of economic development, modern falsifications of Marxist-Leninist economic doctrine.

The criticism of bourgeois and revisionist conceptions of the theory and practice of real socialism, the revelation of the evolution of the views on the development of socialism, the essence of anti-Sovietism as an ideological trend of imperialism, its sources. The exposure of bourgeois economic theories of the development of capitalism, imperialist conceptions which distort the significance of the liberation struggle of the popular masses, imperialist militaristic doctrines, which are dangerous for the cause of peace. The exposure of the reactionary essence of Maoist concepts in the area of economic theory, their historical and social roots.

6. In the Area of the Organization of Economic Research and the Training of Scientists

The institutes of the Economics Department of the USSR Academy of Sciences and the academies of sciences of the union republic are to make the necessary changes in the plans of scientific research for 1981-1985 in conformity with the principles and tasks, which were advanced by General Secretary of the CPSU Central Committee L. I. Brezhnev in the Accountability Report of the CPSU Central Committee to the 26th party congress, with the decisions of the 26th CPSU Congress and are to concentrate efforts on the conducting of basic and applied research for the assurance of the solution of the most important economic and social problems of Soviet society.

To increase the role and responsibility of the Economics Department of the USSR Academy of Sciences, the scientific councils for comprehensive problems, the institutes of the USSR Academy of Sciences and the academies of sciences of the union republics in the coordination of economic research, the strengthening of the relations with economic planning organs, ministries, production associations and enterprises.

The Bureau of the Economics Department of the USSR Academy of Sciences is to review regularly the activity and to give assistance to peripheral scientific institutions, to use in practice field sessions in the union republics and most important regions of the RSFSR in order to strengthen the relations with the local scientific forces and to involve them in the solution of the general problems of economic science. To improve the planning of scientific research, to use more extensively the methods of goal program planning, to increase the responsibility of the directors of scientific institutions and all executives for the fulfillment of the plans of research and the quality of the scientific works and recommendations on questions of the development of the socialist economic system and the improvement of the economic mechanism. To determine and change in due time the direction of research and

development, the organizational structure of scientific institutions, to close unproductive divisions and laboratories.

To expand the practice of joint research of the institutes of the USSR Academy of Sciences and the academies of sciences of the union republics with the scientific institutions of the sectors of the national economy. To make more use of the potential of the science of higher educational institutions, to increase the coordination of research on procedural questions of the teaching of political economy. To develop the creative cooperation of economists with representatives of the other social, natural and technical sciences.

To increase the role of the scientific councils of the Economics Department and the journals of the USSR Academy of Sciences in the discussion of urgent debatable questions of economic theory and in the preparation of recommendations on the solution of the problems of the building of the economy.

To ensure the broadening and improvement of the training, further training and certification of specialists, especially political economists and more highly skilled specialists, to extend the training of staffs of economics scholars for Siberia, the Far East, the European north, as well as for the union republics. To increase the demands on the theoretical level and practical importance of dissertations.

To step up the work of economics scholars on the promotion of economic knowledge, the publication of popular scientific literature, the development of economic thought among management personnel and the broad masses of workers, the cultivation of a sense of thift and economy. To step up the promotion of the achievements of the Soviet economy, to ensure closer cooperation with Izdatel'stvo "Nauka", other central, republic and local publishing houses on the publication of scientific and popular scientific literature, the selection of foreign economic literature for translation into the languages of the peoples of the USSR, the selection of Soviet literature for publication in foreign languages.

To expand the cooperation of the institutes of the Economics Department of the USSR Academy of Sciences and the union republics with scientific institutions of the fraternal socialist countries in the study of the basic problems and the preparation of collective works; to increase the activeness of Soviet economics scholars in the work of international theoretical conferences and symposia, the strengthen of the relations with progressive scholars of the capitalist and developing countries.

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USSR GOSBANK AS IT FUNCTIONS IN RSFSR

Moscow SOVETSKAYA ROSSIYA in Russian 11 Oct 81 p 2.

[Interview with S. Ye. Yegorov, manager of the Russian Office of Gosbank USSR by O. Oparin; date and place not specified]

> [Text] A new building in a modern architectural style on Zhitnaya Street in the capital. A bronze plate on it contains the words: "USSR State Bank. Board of the Russian Republic Office." During these days the State Bank became 60 years old.

[Question] What are the chief duties and powers of Gosbank?

[Answer] Today there are 2,545 institutions of Gosbank and around 46,000 savings banks on the territory of Russia. In essence, there are branches of the bank or savings banks in every rayon, city, and populated point. There is probably no other agency of the Soviet state which is so connected with all of the branches of the economy as Gosbank is.

Gosbank concentrates in itself all of the monetary resources of the economy and of the state budget of Russia and all of the savings of the population. This data comprises an economic barometer which reflects all of the processes of socialist expanded reproduction, deviations from planning assignments, and achievements and shortcomings in the work of the economy. Gosplan's economic information is especially valuable in that it is not influenced by narrowly departmental interests.

A very important function of the State Bank is to provide credit to the economy which is widely used for the growth of all of the branches of the economy and for the development of technological progress. Credit helps to increase the production of consumer goods, to renew and improve the quality of output, and to expand its assortment.

[Question] Can you demonstrate this with concrete examples?

[Answer] During the 10th Five-Year Plan Russia's associations and enterprises were granted credits to carry out more than 62,000 measures connected with the

introduction of technological progress, the increased production and expanded assortment of consumer goods, the development of the trade network, and an improvement of cultural and domestic services for the population. In monetary terms this came to five billion rubles.

This year, for example, credit amounting to 881,000 rubles helped to complete the reconstruction of a sour cream and cheese shop at the Omsk Dairy Combine. The production of cheese and cheese products has increased by three times, and that of sour cream has doubled.

Here is another interesting example of Gosbank's work. In the first year of the 10th Five-Year Plan 84 million rubles in credit was granted for the reconstruction of poultry factories. This made it possible to increase the production of eggs by two billion eggs a year.

Gosbank is participating directly in the solution of the major economic and social problems connected with the overall development of the economy of the Non-Black Earth Zone, the exploitation of the natural resources of Siberia and the Far East, and the construction of the Baykal -Amur mainline. It is providing for all of the normal needs of these regions for money and credit.

During the credit, financing, and payment process Gosbank carries out ruble control over the financial activities of enterprises and economic organizations, and uses the credit and financial mechanism to increase production efficiency, return on capital, and labor productivity, to decrease production costs, and to increase profits.

We were shown two documents in the economic planning administration of Gosbank which had only just gone to their recipients. The famous Orenburg Down Kerchief Factory was allocated a credit of 1,300,000 rubles to purchase 52 semi-automatic machine tools. This will make it possible to increase the production of kerchiefs by 73,000 units a year.

With another order the Dmitrov "Yunost'" Garment Production Association which is located in suburban Moscow was issued a loan of almost one-half million rubles to purchase machines, which will make it possible to increase the production of comfortable good-looking jackets which are so favored by the youth. Two ordinary monetary operations of the many thousands which are performed everyday by Gosbank, an institution about which V.I. Lenin said: "Without large banks socialism would be unrealizable...."

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ECONOMIC POLICY, ORGANIZATION AND MANAGEMENT

ISSUE OF ECONOMIC RISK DISCUSSED

Moscow EKONOMICHESKAYA GAZETA in Russian No 38, Sep 81 p 8

[Article by S. Komov, economist: "The Economic System and Economic Risk"]

[Text] In his report at the 26th CPSU Congress L.I. Brezhnev emphasized the necessity for developing the kind of style of work which combines efficiency and discipline with bold initiative and enterprise. The direction of the economy, as is known, is carried out in legal forms and, consequently, the problems of providing a legal foundation for economic initiative and enterprise have to receive a consistent treatment in the legislation. In its generally used meaning to act with initiative and boldly and enterprisingly means to know how to take risks. There is a term which exists for such actions, "economic risk," which is used both in economic and juridical terminology and in economic practice.

With the increased importance of economic levers and stimuli in the direction of the economy, the problems of economic risk require a legislative solution with regard to the economic responsibility of labor collectives for the results of the economic activities of production associations and enterprises. This responsibility manifests itself in the form of unfavorable consequences for the collectives, particularly decreases in the incentive funds of associations and enterprises for the nonfulfillment of economic indicators when the results of economic work are evaluated.

I would like to analyze the following example. In the city of Volzhskiy for a number of years two enterprises which work together have been using the railroad car pool to transport the raw materials (rubber which is produced at the synthetic rubber plant) to the tire plant; moreover, the cars containing the raw materials went from the manufacturer to the marshalling yard of the railroad station Khimicheskaya which is located several kilometers from the plants, and from there to the railroad sidings of the tire plant. But the distance along a straight line between the supplier and the consumer comes to 50 meters, and all that was necessary to eliminate the irrational shipments was the concerted adoption of the needed engineering solutions for non-rail transportation.

In this case there occurred the use of railroad cars for "short hops." By using cars here the enterprises "risk" that they would not have enough cars to ship their

output to consumers. Was this the only possible path in the concrete complex economic situation? Of course, not. The parties entered into a contract of sheer mismanagement which has nothing to do with economic risk and which, thanks to the active intervention of the Volzhskiy gorkom of the CPSU, was eliminated.

It should be noted that to draw a line of demarcation between economic risk and mismanagement frequently presents a real difficulty in practice. For even types of behavior by economic managers which are provided for by law can as a result of the falsely understood interests of the individual collective of an association or enterprise which are placed higher than state interests turn into financial wastefulness and a violation of economic discipline. It is precisely the task of economic legislation to regulate such matters, and to regulate them exhaustively, without leaving loopholes for violators. In other words, economic risk can and must be controllable.

The present legislation, especially in the most recent norms for the legal regulation of the economy, takes account of the variant character of behavior in certain economic situations, excluding cases which cross the line beyond which economic violations are committed and economic and other kinds of responsibility ensue. Thus, for example, in specific cases the possibility is allowed of transporting scrap metal in railroad cars over a distance of less than 50 kilometers, while, as a whole, such railroad hauls are irrational. There has been an exhaustive decision on the question of the limits of economic initiative and risk in the establishment of contract prices for the first experimental consignments of consumer goods and for especially fashionable products. The limitation with an exact ceiling of the total cost of deliveries which are made on the basis of contract prices in relation to their cost (contract price) ensures stability in state price forming and the rational functioning of economic relations.

At the same time, in a multibranch socialist economy with its numerous combinations of economic relations it is hardly possible to envisage the conditions and the degree of permissibility of economic risk for every possible economic situation. For this reason, in our opinion, the time has come to publish a legal norm which regulates the general questions of economic risk. Obviously, the following belong among these questions: the economic-juridical concept of economic risk; the circumstances under which decisions are made which are connected with economic risk; the limits of permissible economic risk which ensure the efficient functioning of economy; a determination of the levels of the economic mechanism at which authority is exercised in the making of decisions which are connected with economic risk; and the procedures and forms for such decision making. All of this could help to strengthen the legal basis of the social life of our state.

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PLANNING AND PLAN IMPLEMENTATION

BALANCE METHOD OF PLANNING REVIEWED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 9, Sep 81 pp 43-50

[Article by G. Pavlov and L. Pchelkin: "The Balances of Production Capacities--the Basis for the Elaboration of the Production Plan"]

[Text] The most important direction of the steady advance of the national economy set forth by the 26th Congress, is the acceleration of its transition to a primarily intensive path of development, the rational utilization of the production potential that has been created, above all of thos possibilities of our society which are harnessed in the means of production.

To put the reserves of production in the service of society is a most important economic and political task. But today it requires a complex approach, a high degree of organization and coordination in all links and operations of all participants of national production. To this must be added the technical policy and the policy of capital investments, as well as the system of plan and accounting indicators. The rational use of the production potential is one of the basic conditions which guarantee the achievement of really efficient national production, which is possible in the presence of the kind of systematic organization of it that would concentrate the productive forces of the sectors of the national economy and regions into one collective force of society.

The practical plan instrument, with the aid of which these conditions are basically realized, is the balance method of planning. It has the leading role in the securing of the proportional development of the socialist economy since by means of it the coordination of the social demands with the material, labor and financial resources of the country is achieved.

The contemporary scales of material production, the enormous products list of industrial production, and the complication of the interrelations in production and consumption objectively require the perfection of the entire system of balance calculations in planning as the quantitative expression of the proportions of socialist expanded reproduction, including the intensification of work with the balances of production capacities.

In conformity with the decree of the CC CPSU and the USSR Council of Ministers of 12 July 1979 "On the Improvement of Planning and the Strengthening of the Influence of the economic mechanism on the Efficiency of Production and the Quality of Work," the ministries and departments of the USSR and the councils of ministers of the union republics have been instructed to elaborate, in the structure of drafts of

the five-year-plans, and to present to the USSR Gosplan the plan balances and the calculations of the utilization of the available production capacities and fixed capital.

Production capacity is a most important indicator which characterizes the possibilities of the creation of concrete types of production necessary for the satisfaction of public needs. Therefore, the correct understanding of the essence of the category of production capacity is of principal significance in the solution of the tasks that have been set.

According to the effective "Basic Provisions for the Calculation of Production Capacities," approved by the USSR Gosplan and the USSR Central Statistical Administration in January 1977, by the production capacity of the industrial enterprise and production association (combine) is meant the maximum possible annual (daily, shift) output of production or volume of extraction and processing of raw material in the products list and assortment for the accounting year, corresponding to actual output; for the plan period--the output and volume envisaged by the plan, given the full use of the production equipment and production areas, taking into account the realized (for the accounting year) and projected (for the plan period) measures in regard to the introduction of advanced technology of production and scientific organization of labor. The given concept of production capacity characterizes the category being reviewed sufficiently fully.

Production capacity, in point of fact, expresses the maximum possibilities of the means of labor in the presence of the full provision of the other elements of the means of production necessary for their functioning and support of useful operation.

The indicator of production capacity is the basis in the elaboration of the plan of production output at the level of the enterprise, industrial capacity, and national economy. As objectively as the enterprises approach the estimation of their potential possibilities in regard to the output of production, as valid is the plan of production and as guaranteed is its fulfillment. The latter depends to a significant extent both on the correctness of the establishment of the proportions between the productivity of the individual groups of the equipment of the shops and the sectors within the enterprises and on the securing of contingency in the production capacities of the interrelated sectors of industry and of the factories within a sector. ". . . In an open system of machines," Karl Marx wrote in this connection, "in order for some partial machines constantly to give work to other partial machines, a definite relationship between their quantity, sizes and speed of operation is necessary."* Consequently, a more or less strict complex proportionality of equipment is necessary--which, unfortunately, is not always attained in the enterprises. There are significant disproportions in the technological and the type size structure of equipment, there is excessive growth in the inventory of some machines and mechanisms in the presence of an acute shortage of others, which lowers the level of the use of the potential that has been created.

*K. Marks i F. Engel's, "Sochineniya" [Works], Vol 23, pp 391-392.

Being a technical-economic category, the magnitude of production capacity depends on the quantity and quality of labor and their productive-technical parameters, as well as on the organizational and economic conditions of the functioning of production. At the basis of the measurement of capacity lies the maximum productivity of the means of labor, which is determined by the technological process and the linkage of the technical basis of production.

Sectorial peculiarities, to some extent generalized in the formulation of the concept of production capacity presently accepted, are of considerable significance for the determination of production capacity and the selection of units for its measurement. For example, emphasis is given to the peculiarity of the determination of production capacity by volume of extraction, which is characteristic for the coal industry, or by the processing of raw material, which extends to some sectors of the oil processing industry and also to the food and meat and dairy industry. We believe that to determine production capacity on the basis of the quantity of the raw material being processed is not entirely correct. The thing is that the accepted method of calculating capacity does not provide the possibility of determining the level of utilization according to finished production. This shortcoming is aggravated by the fact that, although capacity is determined by the processing of raw material, the production plan and material balances are compiled according to final product.

There are also certain shortcomings in the measurement of the production capacity in industries with multiple-products lists, where cost measures find increasingly greater dissemination, relegating natural indicators to secondary place. As is well known, the most adequate indicators of the measurement of production capacity are natural indicators; cost indicators do not characterize the natural-material composition of the product: they sooner characterize the possibilities of gross output. And this cannot, to the required extent, reflectthe actual possibilities of the enterprise or industry with respect to the production of one or another kind of use value.

For industries with multiple-products lists, the products list and product assortment are the most important factors determining the magnitude of production capacity. Any change of the products list leads to a change in the structure of labor intensivenessand intra-production proportions. The capacity of the enterprise in this connection may change significantly. Therefore, the question concerning what products list must serve as the basis of determination of production capacity in industries with multiple-products lists in order for it actually to be the basis of the production plan requires additional study and reflection in the appropriate methodological documents.

Production capacity is the foundation on which the planning of capital construction is based. In particular, in the planning of capital investments necessary changes in the production capacities in sectors of industry must be taken into account. A more rational distribution of capital investments depends on the correct calculation of the necessary growth of production capacity by structure. It is precisely because of this that the efficiency of capital investments is to a significant extent determined by the level of balance work in regard to the reproduction of production capacities in the stages of planning, as well as of projecting, of the con-

struction and putting into operation of the projected capacities.

It makes it possible to reveal:

The validity of the projections of the enterprises and projects, taking into account the production capacities of operating enterprises;

the depth of study of the time frames for the introduction of capacities of coupled sectors and industries, and the reality of their fulfillment;

the correctness of the calculations of the planning of the introduction and putting into operation of the capacities of coupled industries in conformity with the establishment of normative deadlines.

In recent years, the construction of new enterprises has been carried out on a significant scale and a large number of operating ones have been expanded and reconstructed. In the 10th Five-Year-Plan alone, more than 1,200 large industrial enterprises have been built, as well as many new shops and factories in enterprises being expanded and reconstructed. This made it possible to obtain a significant increase in the production capacities for the output of many types of products. However, as the results for 1980 show,** the growth of capacities did not guarantee, especially in the 10th Five-Year-Plan, a corresponding increase in the output of production.

From the table presented below it is evident that in the majority of cases examined the unit of growth in capacity did not guarantee growth in production output that was even close to the unit. Cases where the coefficient is higher than the unit testify to the primarily intensive development on the basis of an increase of return from operating capacities with the complete return of new capacities.

Table 1. Relationship of Growth of Production Output to Growth of Capacities

Item	1971-1975	1976-1980
Cast iron	1.32	0.71
Steel	2.29	0.49
Rolled ferrous metal (finished)	1.47	0.58
Steel pipes	1.51	1.16
Sulphuric acid	0.75	0.45
Mineral fertilizers (in conventional units)	0.91	0.35
Synthetic resins and plastic materials	1.19	0.53
Fibers and chemical fibers	0.95	0.95
Automobile tires	1.31	0.65
Turbines	0.48	0.46
Motor vehicles (including buses)	1.07	0.96
Excavators	1.22	0.22
Cellulose	0.81	0.33
Paper	2.02	0.26
Cement	1.29	0.27
Knitted fabric for outer- and underwear	1.18	3.2
Leather footwear	0.28	2.13

**See sb. "SSSR v tsiffrakh v 1980 g." [The USSR in Figures in 1980], Moscow, "Statistika", 1981, pp 100-105 and 141-144.

In the coal industry the growth of production capacities as the result of new construction and the expansion and reconstruction of operating enterprises during 1976-1980 with respect to the extraction of coal amounted to 90.4 million tons, but the growth of production was only 15 million tons. In the chemical industry for sulphuric acid, a production growth of 4.4 million tons corresponded to a growth in capacity of 15 million tons, for soda ash--88,000 and 505,000 tons respectively, for mineral fertilizers--13.8 million tons (in conventional units) to 39.3 million tons.

In the machine-tool industry, in the presence of the putting into operation of capacities for the production of metal-cutting machine tools of 12,800 units per year, a decrease in the output of machine tools in kind of 15,000 units was allowed and an increase of their output in terms of cost expression of 581 million rubles --which unnecessarily confirms the idea that cost-based indicators do not characterize the natural-material composition of production output.

Such correlations in the indicated and other industries between the growth of production capacities (by virtue of the construction of new, and the expansion and reconstruction of existing enterprises) and production output testify to the low level of return on capital investments as a result of significant underexploitation of the capacities that have been put into operation.

Among the basic reasons for the situation that has developed is the fact that the ministries and associations do not take adequate measures to achieve linkage of the projected capacities, as the consequence of which the national cooperation of labor is disturbed, deficits arise in raw material, materials and other resources, and the efficiency of national production is lowered.

The presence of frequent intra-industry and inter-industry disproportions also leads to the fact that the shortage of capacities in one link calls forth the lowering of the level of utilization of capacities in other links of the industry and the national economy. As a rule, the bottlenecks occur in the capacities for the production of raw material products. Consequently, the presence of bottlenecks in the development of the raw material base calls forth the appearance of "superfluous" capacities in the processing industries, which for the above-mentioned reason cannot be kept running at full capacity. The non-linkage of the individual capacities is aggravated by shortcomings in the administration of production in the sectors of industry, including in the determination of the demand for a given product, the material-technical supply, and the utilization of labor resources.

The policy of capital investments in the 11th Five-Year-Plan is to a great extent directed towards utilizing, with thrift and full return, the enormous potential that has been created by the Soviet people so as to fulfill the demands set forth by the 26th CPSU Congress. One of the tasks defined in the 'Basic Directions of the Economic and Social Development of the USSR for 1981-1985 and the Period to 1990" directly aims at beginning the installation of new and the expansion of operating enterprises only if the demands of the national economy for a certain type of production cannot be met by means of improving the utilization of production capacities considering their reconstruction and technical reequipment.

The perfection of planning, connected with the strengthening of the summary-economic and balance work in the USSR Gosplan, in the ministries and departments, the Gosplans of the union republics, first of all must include the development of a system of balances of production capacities reflecting the achieved potential proportionality in the production sphere. The system of balances must also make it possible to estimate the production potential that has been created, the degree of efficiency of its utilization, the presence of disproportions and bottlenecks, and to indicate basic ways of their elimination and the more rational development and use of the means of production.

A mutually correlated system of balances of the production capacities at the national economic level will make it possible to characterize more objectively the state and the possibilities of the production potential of the country and its reserves; to secure the combined coordination of the development of adjacent sectors of industry and of the national economy. More precisely, to coordinate the tasks in regard to production and capital construction.

It is necessary to achieve more clear-cut coordination in the elaboration of the balances of production capacities and material balances. The complete coordination of these plan calculations in the departments of the USSR Gosplan is possible only provided there is joint simultaneous study of them.

The system of balances of production capacities also makes it possible to solve objectively one of the most complex questions of planning practice--the question of greater economic soundness in the distribution of capital investments among sectors of the production sphere. Moreover, the system of balances simultaneously will make it possible to take into account to a sufficient degree the possibilities of the intensive growth of the production of many types of products without new capital construction by virtue of the achievement of better linkage of the capacities that have been created and the fuller use of machines and equipment, and also to encourage the elaboration of rational solutions in regard to the implementation of specialization, cooperation, and the combination of production in departmental, interdepartmental as well as territorial aspects.

At the same time it is impossible not to notice certain difficulties and shortcomings in the elaboration and utilization of the system of balances of production capacities in the existing organization and order of work with them in the planning organs.

It must be acknowledged that the existing practice of planning inadequately envisages the justification of the plan of production with calculations of the introduction and utilization of production capacities. The extent of the workload of the different interrelated production capacities, i. e., their balance, is not taken into account fully. The work on the plan must be based on a solid and reliable base --which the accounting balances of the production capacities represent. At the present time, it is still impossible to acknowledge that they meet the requirements with which contemporary planning confronts them.

The 'Methodical Instructions Concerning the Composition of Annual Accounting Balances of Production Capacities" envisage that the accounting balances are presented to the

USSR Central Statistical Administration and to the USSR Gosplan by the ministries and departments and the Councils of Ministers of the union republics by 31 March. However, the practice of the work of the past few years shows that this given deadline is not sustained, and the ministries do not bear any responsibility. In the current year, for example, the Minzhivmash [Ministry for Livestock Machinery] presented accounting balances of production capacities more than three months after the deadline, and some ministries, in particular the USSR Ministry of the Coal Industry, the Ministry of the Automotive Industry, the Ministry of Agricultural Machinery and others turned in balances not covering the entire established products list--which significantly complicated the work of the USSR Central Statistical Administration. The violation of the deadlines for the presentation of accounting balances and deviations from the established rules complicate the work of the departments of the USSR Gosplan which plan the development of the sectors of industry and the national economy.

The ministries and departments fail to conduct an adequate analysis of the balances presented to them by the enterprises, admitting the lowering of the magnitude of production capacities and an increase of the coefficient of their use. Thus, the Ministry of the Automotive Industry and some other machine-building ministries systematically show the utilization of production capacities at 100 percent and higher with respect to the output of a number of types of products. This speaks, first of all, to the fact that operating capacities are calculated inaccurately and secret reserves are available. Consequently, the successful solution of the tasks of raising the efficiency of production is linked to the strengthening of work with respect to the control of the use of production capacities in enterprises, which must be systematically conducted by the ministries and departments, by the Councils of Ministers of the union republics, and also by the industrial departments of the USSR Gosplan.

The more purposeful conduct of the analysis of accounting balances of production capacities at different levels offers great possibilities for the mobilization of reserves. We believe that this work in the ministries and departments must be preceded by the methodical and accounting verification, including the reliability and correctness of the calculations of the production capacities of industrial enterprises, including:

-The accounting basis accepted by the enterprises in the determination of production capacities (the products list and the structure of the production turned out, the time fund of equipment operation, aggregates and plants, productivity, work load, coefficient of the shift system of the work of the basic equipment, production output from production areas);

-the conformity of the calculation base, accepted for the determination of the production capacities of enterprises to the established technical norms of the productivity of equipment, aggregates, plants, the utilization of areas, the labor intensity of the manufacture of articles, production output from raw materials, the length of repair of technical equipment taking into account the application of advanced techniques and technology in production, the most perfect organization of labor, and the indicators of the work of the leading workers;

-data on the increase and reduction of capacities in connection with the change of the products list, the assortment of production being turned out, and the work regime of enterprises, the removal of capacities, and others.

The analysis of the accounting balances of production capacities, conducted directly by ministries and departments, includes an estimate of the utilization of production capacity for the accounting period. The level of the use of production capacity is estimated by the comparison of the actual coefficient of use of production capacities with the planned coefficient.

Special attention in the analysis of the accounting balance of production capacities is being turned to data which characterize the increase (decrease) of capacities in connection with a change of the products list, the assortment of the production being turned out, and also the work regime of the enterprises. In this connection, a decrease in the production capacities that have been approved following established procedures for operation enterprises and the projected capacities of new enterprises, plants, factories, installations and aggregates may be carried out by the ministries and departments of the USSR and the Councils of Ministers of the union republics only with the agreement of the USSR Gosplan.

In the process of the elaboration of the plan balances of production capacities in the ministries the possible volume of production output is determined from the capacities in enterprises and projects operating at the beginning of the period being planned, taking into account the increase of production capacities arising from technical reequipment, reconstruction and the implementation of organizational-technical measures; a calculation is made of the necessary introduction of new capacities taking into consideration the established national economic demand for production; the linkage of the capacities of interrelated sectors and industries, individual groups of equipment, and others is determined.

The most important task of the corresponding subdivisions of the ministries and departments in the elaboration of plan balances of production capacities for the output of the most important types of products is the exposure of reserves for the increase of production output in both operating and newly-introduced capacities, the elaboration of of measures to increase the efficiency of production aimed at the elimination of disproportions in the development of adjacent sectors and industries, as well as non-linkage, and the increase of the coefficient of the shift system and the work load of equipment.

At the level of the USSR Gosplan the linkage in the development and use of the capacities of the sectors of the national economy and sectors of industry is determined, the proposals being introduced in regard to the improvement of their use in the plan period are assessed, and the adequacy of measures adopted by the ministries in this direction is verified. Proceeding from the national requirements and the basic directions of the economic and social development of the country, the basic tendency in the development of capacities is more precisely defined, and the possibilities and levels of the use of the production potential are assessed.

The practical difficulties of elaborating the plan balances of production capacities are related to the great complexity of securing linkage in the production of

individual products, as well as the inadequate "flexibility" of the balancing of production capacities in the presence of possible changes and corrections introduced into the drafts of the plan.

However, the objective necessity of the elaboration of a system of balances of production capacities and the possibilities which have been opened up by economic and mathematical methods and computer technology, and in particular the use of the intersectorial balance of capacities, making it possible to obtain more correct quantitative expressions of production relations, provide the possibility of increasing the degree of conformity in the development of adjacent sectors of industry and the national economy and on this basis to improve the balance of national economic plans.

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ROLE OF PRICE FORMATION, NEW TECHNOLOGY

Moscow EKONOMICHESKAYA GAZETA in Russian No 44, Oct 81 p 11

[Article by L. Rozenova, chief of a department at USSR State Committee for Prices: "The New Technology and Price"]

[Text] In recent years, the role of price formation has grown significantly in the system of economic stimulation of scientific-technical progress. Practice is being expanded of prescribing incentive markups for wholesale prices for new equipment of the highest category of quality with simultaneous employment of price reductions for items of second category of quality and low-efficiency obsolete production. The positive value of ceiling prices is growing. With the creation of a single fund for the development of science and technology, the problem of compensation for increased outlays during the first period of establishment of series production of items is being positively resolved.

At the Stage of Development

Price can actively influence the creation of high-efficiency equipment at the initial stages of planning and design development and indicate an acceptable level of production cost. In appearing together with economic effectiveness as a criterion of the advantageousness of development and subsequent production of items with given parameters, ceiling prices serve as one of the indicators of a technical assignment. They have now become obligatory with the establishment of state standards and technical conditions.

The USSR Committee for Prices registers ceiling prices for the most important forms of production. These include metal-cutting machine tools, forging and pressing machines, equipment for foundry shops, rolling mills, turbines, agricultural machines, motor vehicles, buses and trailers, weaving looms and spinning machines. The ceiling price is registered at the technical planning stage so that in case of an ineffective structural solution development is either stopped or the item is improved. For example, 13 ceiling prices for metal-cutting machine tools were not registered in 1980 because of inadequate efficiency and high outlays for their manufacture.

Incentive Markups

The cost-accounting interests of fabricators of new equipment and its users are, as we know, contradictory to a certain extent in regard to price level. This contradiction is removed by the production of equipment of the highest category of

quality whose production and use produce a national-economic effect for the satisfaction through price of the economic interests both of the manufacturer and of the user of the product.

Each fourth item of new machine-building products corresponded in 1980 to the highest category of quality according to its parameters. In all sectors of machine building, with the exception of the Ministry of Automotive Industry, the share of added profit from incentive markups stemming from the sale of products of the highest category of quality in the total profit sum, as can be seen from the table, is constantly increasing (in percent):

Ministries	1977	1978	1979	1980
For machine-building industries, total, including:	1.6	1.9	2.0	3.0
Ministry of Heavy and Transport Machine Building	3.4	4.8	5.4	8.6
Ministry of Power Machine Building	2.0	3.1	3.5	6.2
Ministry of Electrical Equipment Industry	3.4	3.7	4.1	4.5
Ministry of Chemical and Petroleum Machine Building	1.5	1.7	2.4	5.5
Ministry of Machine Tool and Tool Building Industry	0.5	0.6	1.0	3.7
Ministry of Instrument Making, Automation Equipment and Control Systems	0.3	0.5	0.5	1.1
Ministry of Automotive Industry	2.1	2.2	1.9	2.0
Ministry of Tractor and Agricultural Machine Building	0.8	1.1	1.5	1.8
Ministry of Machine Building for Animal Husbandry and Fodder Production	1.6	3.2	2.44	2.5
Ministry of Construction, Road and Municipal Machine Building	0.9	1.23	1.46	2.8
Ministry of Machine Building for Light and Food Industry and Household Appliances	0.3	0.44	0.48	1.0

The principles and proportions of distribution of this effect are specified in the decisions on improvement of the economic mechanism. The manufacturer of new products of production and technical designation partially benefits in the form of an incentive markup of the wholesale price. The size of the markup depends on the size of economic gains and the profitability norm adopted in fixing of prices for the given or comparable group of products. It can be calculated within the limits of 0.5 to 1.25 of the profitability norm, but it cannot exceed 70 percent of annual economic gains.

Accounting within the system of economic calculation of the national economic effect in the form of incentives markups of wholesale prices of new products has strengthened, as shown by practice, the effectiveness of economic levers for acceleration of scientific-technical progress. Incentive markups have become a flexible price instrument meeting the requirements of the cost-accounting system of of organization of scientific-design and production work on the creation, development and introduction of new equipment on the basis of supply orders.

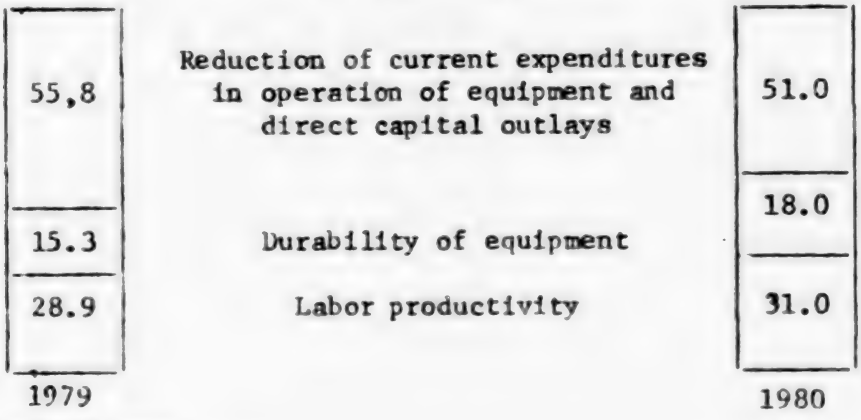
During the period of 1979-1980, the USSR Committee for Prices approved or extended 9,721 incentive markups solely for machine-building products. In accordance with measures provided by the decrees for improvement of the economic mechanism, there was developed a more favorable scale than the one previously in effect for calculation of markups. As a result, for machine building, the size of markups in 1981 compared to 1979 increased from 3.5 to 6.2 percent of the wholesale price and from 15.1 to 18.9 percent of the national economic effect. The sum of additional profits from the sale of products of the highest category of quality just for machine-building ministries in 1980 ammounted to 333.2 million rubles.

Up to 70 percent of the additional profit made by the manufacturer of new equipment through markups goes into economic stimulation funds of enterprises, scientific-research, planning-and-design and technological organizations, while the remaining part is distributed between the sectorial single fund for the development of science and technology and the state budget.

It is noteworthy that during this period the economic effectiveness of new equipment grew in machine building. If its level in 1979 be taken as 100 percent, then in 1980 it rose to 106.5 percent and in the first half of 1981 to 112.1 percent.

Moreover, as can be seen from the diagram, the structure of the economic effect became more progressive--that part of it increased which is formed from growth of productivity and durability of equipment.

Structure of Economic Effect of New Equipment
(in percent)



Responsibility of User

Improvement of economic stimulation and material incentives results in the biggest achievements there where there are accomplished carefully thought out organization of planning-and-design work and technological services at enterprises, cadre selection and strengthening and training of high-class specialists. Only such a comprehensive approach to all aspects of creation and introduction of new equipment makes it possible to raise in it the share of products corresponding in all parameters to the best domestic and foreign models. As can be seen from the table, it amounted to 25.8 percent in 1980 in machine building according to data in price fixing for new equipment, 54.5 percent at the Ministry of Electrical Equipment Industry, 13 percent at the Ministry of Machine Building for Animal Husbandry and Fodder Production and 1.5 percent at the Ministry of Tractor and Agricultural Machine Building.

Ministries	New machine-building products in 1980 (in percent)	
	highest category of quality	first category of quality
Total for machine building, including:	25.8	74.2
Ministry of Electrical Equipment Industry	54.5	45.5
Ministry of Instrument Making, Automation Equipment and Control Systems	17.4	82.6
Ministry of Chemical and Petroleum Machine Building	46.5	53.5
Ministry of Heavy and Transport Machine Building	46.0	54.0
Ministry of Power Machine Building	21.5	78.5
Ministry of Tractor and Agricultural Machine Building	1.5	98.5
Ministry of Machine Building for Animal Husbandry and Fodder Production	13.0	87.0
Ministry of Construction, Road and Municipal Machine Building	24.0	76.0
Ministry of Machine Building for Light and Food Industry and Household Appliances	28.2	71.8

Analysis of materials relating to the establishment of incentive markups indicates that cases are still to be found where, instead of organizational work for overcoming of difficulties in the way of improvement of the process of development and creation of new equipment, attempts are sometimes made to bolster the economic position of an enterprise or organization by means of an unjustified increase in markup sizes. The fact is that the funds obtained from the markups are not included, as we know, in the plan but are rather included in the report on its fulfillment. And the higher the markup level, the better do the results of the work look.

The economic effect determined by the ministries manufacturing the products in coordination with the user is made too high, in a number of cases by 30 percent or more. In addition consumers frequently confirm the effect from the use of new equipment without the necessary checkout inasmuch as they carry no economic accountability for its reliability. It would be advisable in our opinion to plan and to take into consideration the return to the user from the new equipment, that is, to express the economic effect in absolute sums through reduction of production cost (in operational outlay savings) and reduction of capital investment (with growth of labor productivity) for the user.

It would be advisable to plan the gains from the new equipment from the year of its delivery. This would make it possible to influence the speeding up of start-up of the new equipment and its quick mastering.

Economic Sanctions

The advantageousness of the new equipment for the manufacturer is shown not only in the absolute level of its profitability but also in a comparison with the profitability of production of the old items. Using stable prices, the profitability of machines introduced long ago grows, as we know with the passage of time. To assure a relative advantageousness of new equipment for the manufacturer and to actively influence removal from production of obsolete items, wholesale prices are either discounted or lower prices are introduced.

The size of price reductions amounts to 50 percent of actual profit coming from the sale of an item of the second category of quality. On expiration of the time for removal of such a product from production, the reduction from the wholesale price is set at the full sum of profit. These funds go into the budget; the sum of the reductions is also not taken into account in the plan; while the assessment of its fulfillment is done while taking them into account. For users, the price remains unchanged.

It is presumed that corresponding deductions of funds obtained because of the wholesale price reductions would go into the budget, so to say, automatically, from the time the sectorial certification commission assigns it to the second category of quality. But as shown by practice, this has not occurred. Deductions for old equipment sometimes do not go into the budget because, in accordance with reports, old items do not bring a profit. Consequently, the process of economic sanctions for putting out obsolete equipment must in our view be placed under interdepartmental control. It is also advisable to set the reduction in a strictly fixed amount of the percentage not of the produced profit but of the wholesale price of the obsolete item regardless of its actual profitability.

The interests of technical progress demand further improvement of the practice of compensation of higher expenditure for the development of the new equipment by the manufacturer. These expenditures are not included in the wholesale price but are replaced from the sectorial single fund for the development of science and technology. But in many cases such compensation is incomplete and a part of the expenditures is included in the production cost of new products, which results in unjustified reduction of their profitability. The size of expenditures for the development of the most important forms of equipment subject to compensation to the manufacturer from the single fund for the development of science and technology should, in our opinion, be fixed directly in price handbooks, which would increase the responsibility of ministries in approval of plans for the production of new equipment.

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RESOURCE UTILIZATION AND SUPPLY

EFFICIENT USE OF NATURAL RESOURCES URGED

'IZVESTIYA' Editorial

Moscow IZVESTIYA in Russian 16 Sep 81 p 1

/Editorial: "Use Resources Thriftily"/

/Text/ Enormous natural resources have been drawn into the national economy of our country. More and more most diverse products are being produced--both for the population and for the further expansion of production. And with the increase of the scale of our economy the importance of the drive for the efficient use of every kilogram of metal, wood, cotton and other types of raw materials is increasing. The decrease of the material expenditures in social production by just 1 percent with each year is capable of providing a greater and greater increase of the national income. Whereas, let us say, 20 years ago it "weighed" 1.6 billion rubles, in 1980 it "weighed" 6 billion rubles. It turns out that thrift increases our opportunities in the solution of economic problems and in the increase of the well-being of the people.

The extensive commitment to the turnover of secondary raw materials is one of the most important means of the economy of physical assets. The direction of the attention of the Soviet people toward the efficient use of everything that the economy has, has made it possible during the 10th Five-Year Plan to achieve definite results. The amounts of the procurement and processing of secondary resources as compared with the preceding five-year plan increased by 3.5 million tons. The use of secondary raw materials made it possible to produce goods for production engineering purposes and consumer goods worth more than 5 billion rubles.

It should be admitted that the untapped reserves are also still great. The need to step up the work on the economy and efficient use of raw material, fuel and energy and other material resources was emphasized with particular force in the recent decrees of the CPSU Central Committee and the USSR Council of Ministers and of the Presidium of the USSR Supreme Soviet. The party and government are setting the task of the most extensive involvement of production and household waste and by-products in the matter.

Let us consider, reader, the following lines of the Main Directions: "To develop the capacities for the production of construction materials with the use of the ash and cinders of thermal electric power stations, metallurgical and phosphorus slags, the tailings of the mining sectors of industry and coal-concentrating

factories." Of course, not without reason is the emphasis placed precisely on this aspect of the problem. The point is that nearly 5 billion tons of tailings have accumulated in the dumps just at enterprises of the ministries of ferrous and nonferrous metallurgy, power and the coal industry. The maintenance of dumps is expensive. The main thing is that these artificial mountains of slags, rock and byproducts are truly storehouses of excellent raw materials. From them, for example, it is possible to produce cement and concrete, rubble and porous fillers, wall and finishing materials. And although the construction industry in general is not overlooking such an opportunity, the scale of the use of the waste products of the named works could be greater.

Generally speaking, there is no such sector of the national economy in which secondary resources are not formed in the production process. Their types are diverse--scraps of metal, textile and woolen items, the waste products of sawmill operation and wood processing, spent polymeric materials and so on. A large amount of this wealth is not being put to use. But its commitment to the economic turnover helps to preserve mineral resources, to save human labor, fuel and power and to reduce transportation costs.

Secondary raw materials are no worse than natural raw materials--they are simply different raw materials, and it is important to seek and find the most efficient use for them. Just as they are doing this, let us say, in Estonia. At the Krengol'mskaya manufaktura Combine a special shop produces about 100 descriptions of items from commercial scraps of raw materials and materials. At the Polimer Association, of the total amount of secondary resources 93 percent are put to use. At the enterprises of the republic Ministry of the Timber, Wood Processing and Pulp and Paper Industry every year they find a use for more than 100,000 m^3, or one-fourth of the total amount of scrap wood.

Unfortunately, such assiduity is being displayed far from everywhere. Today only 60 percent of the collected waste paper is being put to use, while much less of it is being procured than could be. The scale of the recovery of worn out motor vehicle tires and the production of polyethylene pipe from old plastic items is negligible. The enormous amount of waste products of personal consumption is clearly being used unsatisfactorily--the collection of worn out clothing, shoes, household appliances, furniture and food scraps has been poorly organized. As a result a large portion of the secondary sources of raw materials is being lost.

In order to overcome these shortcomings, a long-term and purposeful program, which envisages a set of economic and organizational measures, is being elaborated in the country. The amounts of the procurement and processing of secondary raw materials have been established for the 11th Five-Year Plan and the period to 1990. The assignments for a number of ministries and departments on the creation of the necessary capacities for these purposes have been stipulated. Starting this year a section on the use of secondary raw materials has been introduced in the state plans of USSR economic and social development, as well as in the plans of the ministries and departments of the USSR, the union and autonomous republics, krays, oblasts, cities and rayons, enterprises and construction projects. When establishing the indicated section of the sectorial plans it must be seen to that the ministries would not limit themselves to assignments on the delivery of only traditional types of raw materials. It is necessary to increase in every way the influence of economic levers and stimuli, which prompt the careful handling of all types of raw materials.

The rallying of the workers for the drive for the economical and efficient use of all types of material resources is one of the most important directions of the activity of the soviets of people's deputies. The chosen representatives of the people and the organs of the local soviets are called upon to increase their activeness in the matter of organizing the collection, processing and recovery of the waste products of ultimate and production consumption. More attention must be devoted to the development of an extensive network of receiving and procurement centers, housing and municipal services, public organizations and retirees must be enlisted more extensively in this work. Consideration for national property should become a moral regulation of every collective and every Soviet individual.

Resource Growth, Savings

Moscow EKONOMICHESKAYA GAZETA in Russian No 42, Oct 81 p 11

/Article by Doctor of Economic Sciences G. Sarkisyan: "Economic Growth and the Economy of Resources"/

/Text/ The efficient use of raw material, fuel, energy and other material resources has a versatile influence on the processes of economic development. It is one of the most effective means of the rapid growth of the national wealth of the country, the increase of the role of the intensive factors of the development of production and on this basis the increase of the well-being of the people.

The improvement of the correlation of the end national economic results and the resources used for this serves as a generalizing indicator of the increase of production efficiency, the mastering of the intensive methods of management and its effectiveness at all the levels of management.

The Source of Growth

The efficient consumption and economy of material resources to an enormous extent determine the possibilities of increasing the national product and the national income. The proportion of embodied labor in the national product in 1980 was 57 percent, including the expenditures of raw materials, materials, fuel and electric power--50 percent. During the 10th Five-Year Plan raw material, fuel, energy and other material resources worth more than 500 billion rubles more than during the Ninth Five-Year Plan were committed to social production. During the past 5 years the materials-output ratio of the national product was reduced. As a result during 1976-1980 the saving of raw materials, materials, fuel, power and other objects of labor amounted to 11.4 billion rubles, which is equivalent to approximately a 1 percent increase of the national product during this period.

The importance of the economy of material resources as a source of economic growth increases in proportion to the expansion of the scale of production and its intensification. The ratio of the potential saving from a 1 percent reduction of material expenditures to the annual increase of the national income, for example, attests to this. Whereas in 1970 it was equal to 15.5 percent and in 1975 to 30.4 percent, in 1980 it was equal to 39.9 percent. The calculations made using a dynamic intersectorial model show that a 0.1 percent reduction of the materials-output ratio would make it possible to increase the growth rate of the national income by 0.3-0.4 percent.

However, the tendency for the materials-output ratio to decrease does not act clearly enough and does not appear in all the links of the economy, the scale of the decrease of expenditures of resources remains limited, and there are enormous reserves in this area. The material expenditures in comparable prices (excluding amortization) per ruble of national income in 1970 came to 1 ruble 15 kopecks, in 1975--1 rubles 20 kopecks and in 1980--1 ruble 17 kopecks.

Scientific and technical progress is affording more and more extensive opportunities not only for the creation of new sources of raw materials and energy, but, what is especially important, also for the efficient use of the increasing economic potential in the interests of the people and for the efficient and economical consumption of material resources.

The Balance Factor

The growth of the economy, its efficiency and balance are being limited more and more by the potentials of the extractive sectors. The efficient use and economy of material resources serve as the most effective means of the optimization of the proportions and the improvement of the balance of the development of the national economy, the creation of the necessary reserves, the rapid increase of socialist accumulations and thereby as a practicable means of overcoming the strain with manpower.

Experience shows that the orientation toward the inordinate increase of the volumes of the production of raw materials, materials and fuel, which at first glance is a simple and practicable means of meeting the needs of the national economy for material resources, in reality leads to the aggravation of the shortage of not only these, but also other resources. Considerable amounts of machinery and equipment, power and materials and manpower are required for the expansion of the extractive sectors--the most capital-intensive and labor-intensive stage of industrial production.

At the same time the needs of the national economy for material resources continue to increase rapidly, while their satisfaction on an extensive basis is becoming impossible and inefficient. The economy of material resources decreases the needs and at the same time makes it possible to reduce the capital investments in the extraction of raw materials and the production of equipment for the raw material and extractive sectors (three-fourths of all the fixed production capital of industry are concentrated here), as well as the manpower resources channeled into these sectors. The saved assets can be used for expediting the development of the production of consumer goods and the consumer service sphere and for further increasing the well-being of the people.

Reserves in the Sphere of Consumption

Saving in everyday life is of great economic and social importance. This problem is directly connected with the formation of reasonable needs, the rationalization of consumption and the careful treatment of public property. The efficient and reasonable use of consumer items and the reduction of losses in the household are equivalent to the creation of additional resources and are a significant source of the increase of the standard of living of families. Thriftlessness and wastefulness at home and in everyday life not only do harm to personal welfare, but also turn into additional expenses for all of society.

In 1980 of the national income used for consumption and accumulation, which amounted to 451 billion rubles, 344 billion rubles, or three-fourths of its amount, were used for consumption. While with allowance made for housing and sociocultural construction four-fifths of the national income were allocated directly for the well-being of the people.

The population now has property worth more than 500 billion rubles--household, cultural and personal items, means of transportation and others. Consequently, the total amount of resources in the sphere of personal consumption, which are used by the population during the year to meet their needs, exceeds 800 billion rubles, which in terms of a family of three on the average comes to about 10,000 rubles. This does not include the value of housing, schools, hospitals and other nonproductive fixed capital, the amount of which in 1980 came to 595 billion rubles.

A saving of just 1 percent of the resources of consumption on the basis of efficient housekeeping and the reduction of losses is equivalent, according to estimates, to an increase of the amount of consumption by several billion rubles.

The Effectiveness of Thrift

The expenditures on measures to save material resources in production are now on the average one-fifth to one-third as much as the expenditures on the increase of the production of fuel, raw materials and other types of material resources. Moreover, the effectiveness of these expenditures is increasing. To a considerable extent this is due to the fact that with the complication of the geological mining conditions of production and its shift to the eastern regions the extraction and transportation of raw materials and fuel and the generation of power are becoming more and more expensive. Under the conditions of scientific and technical progress the cost of the very measures on the economy of material resources in the process of their use is also decreasing.

Estimates show that whereas 15 years ago it was necessary to spend 2 rubles of capital investments on the extraction of raw materials worth 1 ruble, now it is already necessary to spent 4 rubles, while in subsequent years it will be necessary to spend even more. During the past five-year plan the expenditures on the recovery of 1 ton of petroleum in our country were more than twofold more than in the early 1970's, while during the current five-year plan they will increase even more. The specific capital investments in the mining of iron ore in 15 years increased more than twofold.

Significant results can be obtained by increasing the efficiency of the extractive industry. According to the estimates of specialists, in the extractive industry as a whole, given a total extraction of minerals of more than 6.5 billion tons, the amount of the total losses from incomplete processing and incomplete utilization comes to 2.5 billion tons. The more complete utilization of the potentials of the already available equipment will make it possible to cut these losses by 500 million tons.

The effectiveness of the expenditures on the saving of material resources in the processing sectors of industry, especially in machine building, as well as on the more complete commitment to the economic turnover of secondary resources, production and household waste products is great. Thus, in machine building the

expenditures on providing a saving of 1 ton of rolled metal are approximately 250-300 rubles, which is one-fifth as much as the one-time capital investments in the creation of additional capacities for the production of 1 ton of rolled metal products with allowance made for all the expenditures on the extraction of the necessary amount of ore and fuel, the smelting of steel and pig iron and other expenditures.

The economy of material resources at the works and at home, the reduction of waste products and their recovery and the commitment of secondary resources to the turnover are one of the important conditions of conservation and the improvement of the environment. Owing to this, harm to land resources, the water and air basins, the plant and animal world and, what is the main thing, the health of people is prevented. It is impossible also not to take into account the export value of fuel and energy resources.

The Decrease of the Total Expenditures

The bringing to the forefront of the task of using material resources more completely by no means implies the belittling of the role of the economy of living labor for the intensification of production and the increase of its efficiency. The importance of the economy of living labor is especially increasing under the conditions of the decline of the growth of the able-bodied population during the present decade. The greatest national economic result can be obtained when the effectiveness of the total amount of expenditures--of both living and embodied labor--is increased on the basis of the more efficient use of all the types of available resources. Therefore, the economy of raw materials, fuel, materials and electric power should be viewed in integral connection with the increase of the productivity of living labor and the yield of fixed production capital, which are called upon in combination to provide an economy of the aggregate labor per unit of use value.

During the 10th Five-Year Plan the increase of labor productivity was combined with a reduction of the materials-output ratio and some reduction of the capital-output ratio in the national economy. Here an overall economy of aggregate labor--living and embodied--was achieved, which attests to an increase of the efficiency of social production. According to our calculations, during the 10th Five-Year Plan, of the total increase of the national income by 400 billion rubles the increase of the national income, which was obtained as a result of the increase of labor productivity and the decrease of the materials-output ratio, came to more than 300 billion rubles. However, with allowance made for the decrease of the capital-output ratio, according to the calculations, additional fixed production capital in the amount of 150 billion rubles was required to provide the achieved increase of the national income. As a result the increase of the national income due to the efficiency of the use of all types of resources came to more than 150 billion rubles.

During the 11th Five-Year Plan it is planned to obtain not less than 85-90 percent of the increase of the national income by means of the increase of labor productivity, as against 76 percent in 1976-1980. It is envisaged to improve the ratio of the increase of labor productivity and the capital-output ratio; as a result the decrease of the output-capital ratio will slow as compared with the 10th Five-Year Plan.

According to our calculations, during the 11th Five-Year Plan of the total increase of the national income about 360 billion rubles will be obtained by the increase of

labor productivity. If we take into account the dynamics of the change in the capital-output ratio, this figure must be reduced by approximately 100-120 billion rubles.

As a result, due to the efficiency of the use of all types of resources the national income will increase by 240-260 billion rubles, which will be about two-thirds of its total increase. During the 10th Five-Year Plan the corresponding indicator was approximately two-fifths, which attests to the sharp increase of the role of intensive factors in economic development during the current 5-year period.

The efficient use of resources and thrift are one of the fundamental principles of socialist management. Its consistent implementation in every sector and at every enterprise will promote the further development of the economy and its efficiency and will serve as an important condition of the successful fulfillment of the decisions of the 26th CPSU Congress and the assignments of the 11th Five-Year Plan.

Production Resources

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 9, Sep 81 pp 3-11

/Article: "Use Production Resources Efficiently"/

/Text/ The 26th CPSU Congress specified that the most important directions of the steady development of the national economy are its rapid changeover to the primarily intensive path of development, the efficient use of the production potential and the utmost economy of material, manpower and financial resources. Our progress, it is emphasized in the Accountability Report of the CPSU Central Committee, will depend to a greater and greater extent on the skillful and efficient use of all available resources--labor, fixed capital, fuel and raw materials, the products of fields and farms. The solution of the most important and complicated problems is now within our capability. "But," L. I. Brezhnev noted, "a simple and very ordinary matter--consideration for public property, the ability to use completely, efficiently everything that we have--is becoming the heart of economic policy. The initiative of labor collectives and mass party work should be aimed at this. The technical policy, the investment policy and the system of planning and reporting indicators should be aimed at this."[1]

The recently adopted decree of the CPSU Central Committee and the USSR Council of Ministers, "On Stepping Up the Work on the Economy and Efficient Use of Raw Material, Fuel, Energy and Other Material Resources," is of great importance for the accomplishment of the tasks advanced by the 26th CPSU Congress. This document has a long-term, program significance. An extensive set of measures, which are aimed at the development of a national mass movement of workers for economy and thrift, is stipulated in it.

It is well known that our country meets its needs for the indicated resources by means of its own sources. At present the USSR holds first place in the world in the extraction of petroleum and iron ore, the production of pig iron, steel, coke, mineral fertilizers, lumber, cement and other types of products. The volume of the

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1. "Materialy XXVI s"yezda KPSS" /Materials of the 26th CPSU Congress/, Moscow, Politizdat, 1981, p 42.

consumption of raw materials, materials and fuel in our country nearly doubles every 10 years.

The fulfillment of the extensive program of economic and social development, which has been outlined for the 11th Five-Year Plan and the 1980's, also dictates in the future the steady increase of the needs for raw materials, fuel, energy and other material resources. However, the increase of the extraction of raw materials and fuel is becoming more and more expensive, while their reserves are unrenewable. Thus, the expenditures on the production of fuel during the 10th Five-Year Plan were more than twofold greater than during the period before 1972, while during the 11th Five-Year Plan they will increase even more. The specific capital investments in the mining of iron ore increased in 15 years by not less than threefold. The growing influence of cost-increasing factors is connected with the development of new, more and more remote deposits with difficult conditions of their working, which are located in hard to reach regions.

Thus, under present conditions the most economical and efficient use of all types of resources is of great national economic importance. The utmost economy of material resources is the most important condition of the improvement of the balance of needs and production volumes, as well as the considerable decrease of production costs.

The policy elaborated by the party of the increase of efficiency and the intensification of the economy aims at the more rapid increase of the results of production than the expenditures on it and the obtaining of more with fewer resources. It is necessary to implement even more persistently and consistently the principles of socialist management, to fulfill Lenin's mandate--to keep account of the money carefully and conscientiously, to manage economically, to observe the strictest discipline in labor.

Under present conditions, given the steady increase of the scale of social production, the importance of the economical use of material resources and the decrease of the materials-output ratio is increasing more and more. Whereas in 1970 with a 1 percent decrease of the material expenditures in the national economy the national income increased by 3 billion rubles, at present it increases by 6-6.5 billion rubles.

Positive results in the economy of material resources have been achieved in the different sectors of the national economy. This, during the years of the 10th Five-Year Plan resources worth 11.4 billion rubles were saved owing to the economy of raw materials, materials, fuel, power and other objects of labor. At electric power stations less fuel is being consumed in the generation of each kilowatt-hour of electric power than in many countries of the world. The specific consumption of conventional fuel per released kilowatt-hour of electric power at general-purpose electric power stations is steadily decreasing, and whereas in 1970 it was 367 g, in 1980 it was 328 g.

Many leading collectives made gains in the drive for the economy of raw materials, materials, fuel and energy with the simultaneous improvement of product quality. The gas turbines produced by the Ural'sk Turbomotor Plant, the new turbo-electric welding units of the Elektrostal' Plant of Heavy Machine Building, the open-pit and walking excavators of the Uralmashzavod and many items of other leading enterprises have a lower specific materials-output ratio as compared with foreign models. The basic points of the mentioned decree and the specific measures, which are aimed at

the intensification of the work on the economy and efficient use of raw materials, fuel, energy and material resources, were elaborated with allowance made for the gained advanced know-how and the best achievements in this area. The decree generalizes and sanctions this positive experience and directs attention to its utmost dissemination and adoption.

At the same time it is noted in the decree that the proper turning point in the use of material resources as a whole has not yet come. As compared with the best world indicators more raw materials and power are being consumed in our country per unit of national income. Many types of machines and equipment have a high materials-output ratio, the specific expenditures of materials on the production of a number of items are high. Resource-saving technological processes are being used far from everywhere. In the extraction of minerals a considerable amount of ore, coal and petroleum is not being removed from the ground. Industrial waste and secondary resources are being poorly utilized. Considerable losses of metal, fuel, wood, cement, mineral fertilizers, agricultural and other products are being allowed during the process of production and storage. The production cost and transportation costs are being reduced slowly. All this attests to the great reserves of economy and the increase of the output of the final product from the resources available in the national economy. The most important economic and political task at the present stage is to place the reserves at the service of society.

The decree advances the task of radically improving the work on the economy and efficient use of raw materials, materials, fuel and power in all the links of the national economy. The scientific, technical and structural policies, the investment policy, the system of management, planning and stimulation and the initiative of labor collectives should be aimed at this.

The adopted document is of a complex nature. The measures stipulated in it will ensure the intensification of the work on the economy of all types of raw material, fuel, energy and other material resources, which are used in the different sectors of the national economy, in production and daily life. Particular attention is directed to the development of the mass movement of workers for the utmost economy in industry, agriculture, transportation, construction, the nonproductive sphere and management. Every Soviet individual should take an active part in the drive for economy and thrift at work and at home and should made a concrete contribution to this national cause.

Great responsibility in the practical accomplishment of the tasks on the increase of the economy and the rational use of resources rests with central and local economic and planning organs. They are called upon to implement an extensive set of measures for the purposes of the improvement of management, planning, rate setting and economic stimulation, the increase of the role of science, the improvement of standardization, accounting and monitoring and the tightening up of the policy of economy. This will make it possible to increase the influence of the economic mechanism, plan assignments, economic levers and stimuli on all the work on the assurance of the efficient use of material resources in every link of the national economy.

Planning is the central link in the management of the national economy. In conformity with the decisions of the 26th CPSU Congress the importance of the five-year plan, which is the main tool of the implementation of the economic policy of the party, has to be increased. The party demands that the role of centralized

planning be increased and that the internal production reserves and the present achievements of scientific and technical progress be taken more completely into account in the plans.

An extensive set of measures, which are aimed at the achievement of a decisive turn of planning and economic activity, the development of science and technology toward the more efficient use and economy of material resources, is outlined by the decree. It is stipulated that the orientation of economic development toward the leading growth of the results of production as compared with the material expenditures should be strengthened when drafting and implementing plans of economic and social development. The accomplishment of this task is inseparably connected with the improvement of the structure of the national economy and its sectors in the direction of the utmost reduction of the power-output and materials-output ratios of production, the maximum extraction of minerals from the ground and the complete, thorough processing of raw materials. The acceleration of scientific and technical progress and the changeover of the economy to the intensive path of development serve as the basis of such an improvement. Therefore, the extensive adoption of scientific and technical achievements, which promotes the increase of the efficiency of the use of construction and other materials, fuel, energy and raw material resources, should be ensured when drafting and implementing plans. By means of the improvement of the designs of the machines being produced and the technology of metalworking and the more extensive use of economical shapes of rolled metal products and advanced construction materials in 1985 8 million tons of rolled ferrous metal products will be saved in machine building and 2 million tons will be saved in construction.

The adopted decree calls for the enhancement of the role of science in the efficient use of all types of material resources, the development and introduction of resource-saving equipment and technology and the expansion of the production of high quality products. Particular attention should be directed to research which ensures the reduction of the materials-output and power-output ratio of production, the tightening up of the policy of economy and the increase of product quality. Economic science is faced with important tasks in this area. A number of urgent questions of the improvement of management, planning and economic stimulation still require solution. Much work has to be done on the elaboration of theoretical and procedural questions of the increase of the effectiveness of economic levers and stimuli, socialist competition, the improvement of counterplanning and so on.

The improvement of the preparation and implementation of various programs on the solution of the most important scientific and technical problems will help to use more completely the intensive factors of economy. Every such program, along with measures on the development of new equipment and technology, should provide for the simultaneous, comprehensive solution of all the questions of the increase of efficiency and quality and the use of the intensive factors of development. The established procedure, in conformity with which the programs contain special assignments on the efficient use of fuel, power, raw materials and materials with allowance made for their complete processing and the utmost recovery of secondary resources with the simultaneous improvement of product quality, will be conducive to this.

High quality products should, other things being equal, ensure the economy of resources. Of course, one must not achieve economy to the detriment of quality. A high quality item should always be economical, while an economical item should accordingly always be of high quality. An objective, national economic, rational

approach to the indicated problems is necessary. Precisely such an approach is guaranteed by the extensive set of measures stipulated by the decree.

Now the indicators of the materials-output and power-output ratios, which correspond to the best achievements of domestic and foreign science and technology, will be included among the main characteristics in the standards and specifications. Only with their achievement can a product be assigned to the highest quality category. With allowance made for this requirement it is planned to make in 1981-1982 a review of the norms, standards and regulations of designing and calculations, as well as a check of the specifications for products. During this review the corresponding ministries and departments are obliged to ensure the establishment of advanced norms and requirements, which are aimed at the increase of product quality, the economy and efficient use of all types of resources.

The rapid introduction in practice of the latest achievements of science and technology and the increase of the return of science and engineering thought are one of the decisive links of the successful pursuit of the policy of efficiency and intensification. The examples of the gains made by the collectives of the Moscow Motor Vehicle Plant imeni I. A. Likhachev, the Leningrad Optical-Mechanical Association, the Leningrad Elektrosila Association and the Institute imeni Ye. O. Paton were cited at the 26th CPSU Congress. At the same time cases of intolerable slowness in the assimilation of promising developments, which are connected with the introduction of the continuous teeming of steel and methods of powder metallurgy, the obtaining of high strength artificial fibers and so on, were seriously criticized.

The acceleration of the introduction of advanced developments is an important lever of the economy of all types of resources. The task is to implement consistently the instructions given in the Accountability Report to the 26th CPSU Congress--to resolutely eliminate everything that complicates and slows the introduction of what is new, to interest the participants in production in the quickest possible and more complete assimilation of the fruits of the creative work of scientists and designers. The improvement of the plan indicators, the rate setting of the consumption of resources and the economic stimulation of the work on the identification of reserves of the reduction of the materials-output ratio, which is called for by the decree, will in many ways promote this. The corresponding organizational measures have been outlined. In particular, the organization of the development of the most advanced, resource-saving types of equipment and technology, which are of intersectorial importance, with the following through of the obtained results to introduction in production, is assigned to the USSR State Committee for Science and Technology.

The reserves of the economy and efficient use of raw materials, fuel, energy and other material resources are extremely diverse. In metallurgy, for example, great reserves are connected with the improvement of quality, the enlargement of the assortment of rolled metal products and the increase of the output of economical shapes. Powder metallurgy should be rapidly developed. The continuous teeming of steel is providing a considerable impact. In 1985 35-37 million tons of steel will be produced by this method, which will make it possible to reduce its scrap in teeming by more than 4 million tons.

Untapped reserves exist in all sectors, at every enterprise, at every construction and transportation organization, at every kolkhoz and sovkhoz. In order to mobilize them more completely, the corresponding organizations have been commissioned to elaborate specific suggestions, which are aimed at the efficient and economical use

of material resources in the sectors of industry, agriculture, construction, transportation, housing and municipal services and services. It is necessary to direct particular attention to the reduction of the consumption of unprocessed food products for technical needs and the release from industrial consumption of natural fabrics by their replacement with synthetic and artificial materials. Much has to be done to ensure the efficient use of wood, cement, glass, construction components and other most important types of resources.

The Communist Party demands the assurance of the more skillful use of everything that is being produced. The question of the utmost reduction of scraps and various losses of material resources is becoming especially urgent. L. I. Brezhnev emphasized the importance of this in a speech on the occasion of the 60th anniversary of the Georgian SSR: "We are losing an excessively large amount of products due to the fact that we have not yet learned to properly save national property. We are losing due to the negligence of individual people at work, due to miscalculations of designers, due to the fact that some managers of enterprises or others do not take enough of a state approach, due to the poor organization of the transportation and storage of products."[2]

In conformity with the decree the sharp reduction of waste and losses of raw materials and materials at all the stages of their processing, storage and transportation and the more complete use in production of secondary resources, waste products and byproducts should be ensured when drafting and implementing plans. This will make it possible to place great reserves at the service of the national economy. Thus, the reduction by just one-half of the losses and scrap in metalworking would be equivalent to a 10 percent increase of the production of finished rolled ferrous metal products. Due to corrosion alone the national economy annually loses about 12-15 million tons of metal. About 2 billion tons of conventional fuel are consumed annually in our country. Approximately 350 million gigacalories of secondary energy resources are formed during its use. At present only 40 percent of the mobile resources of secondary raw materials and secondary energy resources and approximately 25 percent of the scrap paper are being committed to the economic turnover. The scraps and secondary resources of plastics, industrial rubber items and so on, which are formed in production and daily life, are being poorly recovered.

The planning and economic organs should envisage in the five-year plans the maximum utilization of the reserves which are connected with the recovery of the scrap, byproducts and secondary resources, which are formed at work and at home. A large amount of work has to be performed here. For example, the procurement of scrap paper by 1985 should increase threefold.

The 26th CPSU Congress set the task to adopt at all levels of the management of the economy more perfect planning indicators, which most completely reflect and stimulate the growth of production, the increase of its efficiency, including the economy of metal, power and other resources. Particular attention was directed to the importance of enhancing the role of the indicator of the production cost. In this connection it is stipulated in the decree: in the five-year and annual plans to establish beginning in 1983 for industrial, construction and transportation ministries, associations, enterprises and organizations assignments on the cost of production (operations), and within these assignments the limit (maximum level) of material expenditures in monetary terms per ruble of production (operations).

2. PRAVDA, 23 May 1981.

The centralized planning of these indicators will promote the achievement of the goals advanced at the congress: the reduction of the cost of production and operations, the increase during the 11th Five-Year Plan of the profit in industry and construction by approximately 1.3-fold and at sovkhozes by 1.7-fold. In many sectors the material expenditures account for the bulk of the outlays which are included in the cost of production (operations). Thus, these types of material expenditures (excluding amortization) account for 73 percent in the structure of the expenditures on the output of production in industry. In a number of sectors of industry this proportion is even higher. For example, in light industry it comes to 89 percent, in the milling, groats and mixed fodder industry--96 percent, in the cotton ginning industry--96.9 percent. Hence it is clear that the planning and strict monitoring of material expenditures are of great importance in the increase of production efficiency. Precisely the economy of raw materials, fuel, energy and other types of material resources is one of the most important means of reducing the production cost. And the smaller the material expenditures are, the lower the production cost is, other things being equal.

It is important for the specific assignments on the production cost and the maximum levels of material expenditures to be optimal and to play a mobilizing role, for them to be oriented toward a radical change in the economical and efficient use of raw materials, fuel, energy and other types of material resources. Such assignments should already be stipulated in the drafts of the five-year plans of all ministries and departments of the USSR and the union republics, in the plans of every association, enterprise, kolkhoz, sovkhoz, every construction and transportation organization. The planning organs, ministries and departments have to do considerable preliminary work on the elaboration and reporting of the assignments on these indicators, which have been calculated on the basis of the newly introduced wholesale prices.

The improvement of the method of calculating and recording the expenditures on production will be conducive to the enhancement of the role of the indicator of the production cost. The ministries and departments of the USSR and the councils of ministers of the union republics are obliged to complete during the 11th Five-Year Plan the conversion of subordinate associations, enterprises and organizations to the standard method of recording the expenditures on production and of calculating the production cost.

The mobilizing role and practicability of the plans in many ways are determined by the norms and standards being used and by the state of the standard base. During the 11th Five-Year Plan the 26th CPSU Congress has advanced important tasks on the economy of material resources on the basis of the adoption of advanced rates of their consumption per unit of output being produced. In 1985 as against 1980 the saving of fuel and energy resources in the national economy will amount to 160-170 million tons of conventional fuel as against 124 million tons during the 10th Five-Year Plan. Here 70-80 million tons will be saved by the reduction of the rates of consumption. Machine building and metalworking are faced with the task to reduce the rates of consumption on the average: rolled ferrous metal products by not less than 18-20 percent, steel pipe by 10-12 percent, rolled nonferrous metals by 9-11 percent. In construction it is necessary to provide a saving of rolled ferrous metal products and lumber of 7-9 percent and a saving of cement of 5-7 percent.

The measures on the improvement of the setting of the rates of the consumption of resources, which are stipulated by the decree, will be conducive to the successful achievement of these indicators. The ministries, the departments and the executives of associations, enterprises, construction projects, sovkhozes, kolkhozes and transportation organizations are ordered to improve significantly the standards service, to enhance the mobilizing role of norms and standards, to make more precise in due time the prevailing rates of consumption and to establish new, advanced rates of consumption of raw materials, materials, fuel and energy resources, proceeding from the plan assignments and taking into account the achievements of science and technology, as well as the know-how of leading collectives.

In the five-year and annual plans USSR Gosplan will establish for the ministries and departments of the USSR and for the union republics standards of the consumption of the most important types of materials, fuel and power in physical terms per unit of output, while the ministries and departments of the USSR and the councils of ministers of the union republics are obliged to report these standards to associations, enterprises and organizations.

It has been made the duty of the ministries and departments of the USSR and the councils of ministers of the union republics to ensure the great scientific and technical soundness of the rates being approved, the assignments on their reduction, as well as the limits of material expenditures and to establish the strict monitoring of their observance. It is also important to ensure the necessary periodicity of the review of the prevailing rates of consumption of material resources with allowance made for the planned dates of the introduction of new equipment and technology. Serious work has to be done on the creation of services, which carry out the rate setting and the monitoring of the efficient use of material resources at associations, enterprises and organizations, and on the reinforcement of these services with skilled personnel.

The party is devoting much attention to the improvement of economic stimulation. It is recognized as necessary to increase the interest of workers, managers, engineering and technical personnel and employees of associations, enterprises and organizations in the efficient use of material resources. The payment of bonuses to workers, foremen, process engineers, designers and other engineering and technical personnel for the economy of specific types of material resources as against the established technically sound (average-progressive) rates of consumption is being expanded.

It is expedient to combine the measures on the improvement of planning and economic stimulation with the enhancement of economic sanctions. The latter should be imposed, for example, when poor management is permitted in the use of production resources, which leads to their excessive consumption, damage and the doing of harm to society. Therefore the decree stipulates that the materials, fuel and power, which are consumed in excess of the norms (limits), should be paid for at higher prices and rates, which are approved in accordance with exstablished procedure. In case of the detection of too high rates of consumption the appropriate ministries and departments are obliged to take steps on their immediate revision. The responsibility for the output of low quality products, as well as for their improper storage is increasing considerably. For these purposes the economic sanctions for the violation of the requirements of the standards and specifications are being extended.

The economical and efficient use of all types of resources requires the concentration of the efforts of all ministries, departments and other organizations. Here a regional or narrow departmental approach and the lack of coordination of actions are intolerable. Great responsibility in the assurance of a national economic, statewide approach, which is conducive to the optimal solution of the problems on the economical and efficient use of material resources, rests with the intersectorial combined subdivisions, which have been established in USSR Gosplan. At the same time for the purposes of the coordination of the work being performed by the ministries and departments of the USSR and the councils of ministers of the union republics on the improvement of the use of raw materials, materials, fuel and power, as well as for the carrying out of day-to-day monitoring of the implementation of the measures in this area, which were stipulated by the decisions of the party and the government, it is recognized as necessary to form an interdepartmental commission for the economy and efficient use of material resources, headed by the Deputy Chairman of the USSR Council of Ministers-Chairman of USSR Gossnab. The corresponding republic, kray and oblast interdepartmental commissions and, in the ministries and departments of the USSR, sectorial commissions are also being formed.

It is important to specify in the shortest possible time the composition of the commissions and to enlist in active work in them skilled specialists, workers who have been granted the appropriate powers and prominent scientists. It is necessary to outline the group of effective directions of the activity of the interdepartmental and sectorial commissions and to determine its effective forms and methods, having concentrated efforts on the implementation of the priority measures which are capable of providing the greatest economy of resources already during the first years of the 11th Five-Year Plan.

At the 26th CPSU Congress it was emphasized that the party has always regarded the plan as a law: "The plan is a law, because only its observance ensures the coordinated functioning of the national economy."[3] Under existing conditions the importance of discipline and the responsibility for the fulfillment of the state plans is increasing greatly. Therefore it is necessary to step up the monitoring of the fulfillment of the plan assignments, various technical and economic indicators and the established norms and standards and of the use of the resources being allocated by the state. Along with USSR Gosplan an important role here is being assigned to USSR Gossnab, which is obliged to ensure strict state monitoring of the efficient and economical consumption of material resources in the national economy, the adoption of advanced rates of consumption and the taking of steps to prevent poor management in the storage and use of raw materials, materials, fuel and equipment, as well as the identification of internal reserves of the decrease of the materials-output ratio of production.

It is important to tighten up the monitoring of the observance of the policy of economy and thrift in all the links of the national economy and of the efficient use of electric power and thermal energy, raw materials and materials, fuel, agricultural products, machines, equipment, means of transportation and manpower resources. It must be persistently seen to that the control of unproductive expenditures and losses would become an everyday matter of the committees, groups and posts of the People's Control and every People's Control member. The organs of the People's Control are obliged to make full use of the rights granted to them, in order to

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3. "Materialy XXVI s"yezda KPSS," p 50.

put a stop to any displays of mismanagement and waste and to make officials strictly accountable for doing harm to the state. The decisions of the party and our plans of economic and social development reflect the will and vital interests of millions of Soviet people and are receiving national support and approval. In this lie the practicability, vitality and strength of the plans of the party and the guarantee of their successful implementation.

The gains made in the development of the national economy during the past months of the first year of the five-year plan and the scope of the national socialist competition, in which more than 106 million people are participating, are vivid confirmation of what has been said. "Socialist competition is the creative work of the masses," L. I. Brezhnev said from the rostrum of the congress. "In its very essence it is based on the great consciousness and initiative of people. Precisely this initiative is helping to reveal and put to use the reserves of production, to increase the efficiency and quality of work."[4] The creative undertakings and initiatives of the leading collectives, which have launched the movement for the economy of material resources, are receiving greater and greater support.

Having joined in the campaign for the implementation of the decisions of the 26th CPSU Congress and the successful fulfillment of the assignments of the 11th Five-Year Plan, the collectives of a number of Moscow enterprises have launched a movement for the introduction in production of the achievements of science and technology, which make it possible to provide the maximum economy of material, energy and manpower resources. This valuable initiative was approved by the CPSU Central Committee, is becoming more and more widespread and is yielding good fruits. For example, the collective of the Moscow Motor Vehicle Plant imeni I. A. Likhachev has elaborated a set of measures and has assumed the obligation to increase the life of vehicles by 16 percent and of motors by 20 percent, to adopt extensively a low-waste technology and owing to this to reduce by the end of the five-year plan the consumption of rolled ferrous metal products as against the established standards by 120,000 tons a year. The fulfillment of the obligations adopted by the collective of the Moscow Motor Vehicle Plant imeni I. A. Likhachev will make it possible during the 11th Five-Year Plan to obtain in the national economy an economic impact in the amount of more than 320 million rubles, to save as against the norms 500,000 tons of gasoline and 45,000 tons of boiler and furnace fuel. The initiative of the Muscovites is supported by the obligations of scientists, who will give scientific and technical assistance to nearly 1,000 enterprises and will turn over to the national economy during the 11th Five-Year Plan about 6,000 studies and developments with an anticipated impact of more than 2 billion rubles.

The consistent implementation of the tasks advanced by the Communist Party on the economical and efficient use of raw material, fuel, energy and other material resources, the tightening up of the policy of economy and the strenghtening of cost accounting in all the links of the national economy will make it possible to fulfill successfully the assignments of the 11th Five-Year Plan and to ensure the steady growth of the economy of the country.

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4. "Materialy XXVI s"yezda KPSS," p 58

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ECONOMIC MODELING AND COMPUTER TECHNOLOGY APPLICATION

MODELS FOR COORDINATING SECTORIAL, TERRITORIAL PLANNING DECISIONS

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/Article by E. F. Baranov (Moscow): "On Procedural Questions of the Construction of a System of Models of the Coordination of Sectorial and Territorial Planning Decisions"/

/Text/ Introduction

The 26th CPSU Congress specified the strategy of the development of the socialist economy for the 1980's. During the 11th Five-Year Plan the further increase of the well-being of the Soviet people has to be ensured on the basis of the steady, progressive development of the national economy, the acceleration of scientific and technical progress and the changeover of the economy to the intensive path of development, the more efficient use of the production potential of the country, the utmost economy of all types of resources and the improvement of work quality ("Materialy XXVI s"yezda KPSS" /Materials of the 26th CPSU Congress/, Moscow, Politizdat, 1981, p 38).

The completion of the changeover to the primarily intensive path of development requires the further improvement of the entire system of the planning and management of the economy. Among the main measures in this area are the proper determination of the priority tasks, the selection of the most effective means of achieving great national economic results, the implementation of a comprehensive approach to the planning of the interrelated sectors of the national economy and economic regions of the country, the assurance of the elaboration of balanced plan assignments on all the indicators and so forth.

The use of mathematical economics methods can make a significant contribution to the accomplishment of the posed tasks. Along with the adoption during the 11th Five-Year Plan of automated systems of planning calculations it is necessary to create the conditions for the further development of the tools of the modeling of the processes of planning and management.

One of the characteristic features of the present stage of the development of mathematical economics research, the start of which it is customary to date to the boundary between the 1960's and 1970's, is the transition from the solution of individual problems to the systems modeling of national economic proportions /1, 2/. Various approaches to the construction of systems of models of the planning of the

economic and social development of the country, which have a different degree of theoretical-methodological and experimental-applied development, are known. The comparative analysis of the various formulations is not a part of the task of this article (it is contained, in particular, in /1/). Let us merely note that whereas as the initial stage of the research some of them were regarded as rival approaches to one extent or another, now it is clear that these approaches "are mutually complementary and in the future may become links of a unified system of models of the drafting of the national economic plan" /1, p 157/.

The goal of the article is to trace the stages of the evolution of the system of models of the coordination of the sectorial and regional sections of the plan of social and economic development, which is being elaborated by the Central Institute of Economic Mathematics, to appraise its present state and to indicate the main means of further improvement in order to transform this system into a sufficiently effective tool of the substantiation of the plan proportions.

The initial stage of the construction of the system in question dates to the late 1960's and early 1970's, when its basic conception was formulated, the possibility of implementation was confirmed, and a number of theoretical methodological assumptions were also elaborated, without the consideration of which it would have been impossible to create not only this system, but also any other system which lays claim to a sufficient degree of adequacy to real socioeconomic phenomena.

Among the most important of the indicated assumptions are the need for: the elaboration (but not the a priori establishment) of the parameters of the national economic criterion of optimality in the iterative process of the compilation of the optimum plan by the simulation of the coordination of national interests with the interests of the individual links of the economic system and different sociodemographic groups of the population, which are differentiated according to the territory of the country; the combination of the compositional and decompositional approaches when substantiating the plan proportions; the consideration in this process of the social consequences which may subsequently develop when implementing the planning decisions; the reflection of the objectively limited mobility with a breakdown by territories of a number of types of national economic resources, first of all manpower resources, and so on. The results of the stage of research in question received quite thorough coverage in /3-5; 6, Section III, Chapter 1; 7/.

Their subsequent development took place in two directions. In one of them /7, 8/ the theoretical methodological generalization of the proposed version of the system from the point of view of the more thorough coverage of the properties of the economy as a complex system and the demands ensuing from this on its management and of the multi-aspectual nature of planning was continued and a description of the system with allowance made for a larger number of factors than in /3, 4, 6/, particularly the continuous nature of the development of a number of works, the clear reflection of the specific features of some multisectorial complexes and others, was undertaken. The theoretical methodological part of work /7/ made a perceptible contribution to the study of the problems of the optimum functioning of the socialist economy (to which the references to this work in many publications attest). As to the formal description of the system in /7/, its further complication as compared with the elaborations previously carried out (moreover, for the most part by means of "extensive extension" to the yet uncovered factors of the traditional methods of modeling) was of exclusively academic interest, since given the available software it was inaccessible for experimental verification.

The second direction /9/ was oriented first of all toward the practical construction of a system of models of national economic planning with a breakdown by sectors and territories. Here the task was set to carry out, on the basis of the most important fundamental assumptions of the initial conception /3, 4, 6/, the implementation of a simplified configuration of the system[1] in order to be convinced of the feasibility of organizing the process of planning, which ensures the consistent coordination of sectorial and territorial decisions, with allowance made for the really existing information and the potentials of modern electronic computers. After obtaining satisfactory results by means of the simplified version of the system it is possible to introduce new elements in it and to take into account the factors previously not covered, that is, to proceed along the path of its evolutionary development /10, p 16/.[2]

The successful conducting of the experiment according to the simplified version of the system of models /9, 11/ created the necessary conditions for its repetition on a qualitatively new level, which governs its subsequent use in the automated system of planning calculations /12/. Therefore the construction of the SMOTR[3] system, which is designed for use at the preliminary stages of long-range planning when elaborating the versions of the indicators of the main directions and the draft of the plan, which ensure the achievement of the aims of the social and economic development of the country and the consistent coordination of sectorial and territorial decisions, was begun during the 10th Five-Year Plan.

When constructing the SMOTR system the following most important principles should be realized /1-7, 9/:

the orientation toward the maximum possible degree of achievement of the set of national economic goals, which covers all the most important aspects of the functioning of the socialist economy (the development of socialist production relations, the meeting of social needs, the increase of the level of the material and spiritual well-being of the workers and so forth);

the adequate reflection of the complex structure of the entire hierarchy of goals and interests of socialist society and its individual units on the basis of the efficient combination of the decompositional and compositional approaches to the construction of the system;

the selection of the most effective directions of scientific and technical progress;

the combination of the planning of the physical proportions with the planning of the system of economic standards (prices for the most important types of products, rates of payments for the use of manpower and other resources and so forth);

the basic coordination of the optimum proportions of the development of the national economy as a whole with the proportions of the development of sectors (multisectorial complexes) and economic regions;

the assurance of the consistency of the generalizing national economic and detailed indicators of the plan by means of the corresponding procedures of aggregation and disaggregation;

the coordination of all the main functional sections of the plan (labor and personnel, finances, the standard of living of the population, foreign economic relations

and others) with each other and with the subsystems of the planning of production and capital investments;

the consideration in the process of compiling the plan of the socioeconomic consequences which may develop during its implementation under the influence of the factors which ensue from its indicators;

the iterative nature of the process of compiling the plan, which presumes the regular exchange of data between the models of different levels and links of the economy;

the use for the most part of existing statistical information and planning and design documents, as well as data, the methods of the obtaining of which are sufficiently clear and do not require expensive means;

the orientation toward developed software and hardware;

compatibility with the principles of the construction and functioning of the automated systems of planning calculations of USSR Gosplan and the Gosplans of the union republics;

the application of the nomenclatural breakdowns, which are used in planning practice, of economic indicators and their measurers, in particular, the classifications of the consolidated dynamic value (18 sectors) and the detailed physical-value (260 types of products) intersectorial models which function in the automated system of planning calculations;

the reflection of the dynamic nature of the development of the economy and the assurance of the possibilities of calculations for a 10- to 15-year planning period.

The Priority Problems of the Development of the SMOTR System

During 1976-1980 the research on the SMOTR system was concentrated mainly on the adjustment of its individual blocks, but here the systemwide developments proved to be substantially lax both owing to a number of objective circumstances and to a considerable extent due to the decrease of the intensity of the study of theoretical methodological problems /13, pp 633-634/. In the operations outlined for the 11th Five-Year Plan it is necessary to ensure the construction of the system at a level which meets the requirements which would create the conditions for its subsequent use for the purpose of solving the practical problems of improving national economic planning.

In this connection let us note the problems toward which attention should be directed first of all. Two of them (see below, paragraphs 1 and 2) are of a theoretical methdological nature and in principle go beyond this system; they presume the in-depth study of the more general aspects of the optimum functioning of the socialist economy. The others stem primarily from the need to increase the level of adequacy of the description of certain aspects or others of the process of social reproduction, as well as the features of the individual links of the national economy in the SMOTR system.

1. The fundamental complication of the system of models of the type in question consists in the requirement of the combination of a multipurpose approach to the

description of the interests of the national economy and its individual links with the assurance of their coordination. At present there are no strict formal algorithms for solving problems of this sort (the substantiated mathematical methods are designed for solving only the problems of either the reduction of the uniform criterion of optimality of the top level of the system to the lower levels by decomposition or the coordination of the interests of the individual units of the system by means of what are called "equilibrium" algorithms, when these interests are expressed by monocriterional functions). Therefore at the present stage it is nececessary to use extensively, along with some mathematically strictly elaborated approaches, heuristic means of coordinating decisions, simulation and man-machine dialogue systems.

The most significant difficulties for the formal description of the corresponding procedures arise as a result of the considerable vagueness of both the alternatives to be studied and the preferences which are attributable to one situation or another or to a version /14/. Under such conditions the enthusiasm for various kinds of procedures of elaborating a priori assignable weights (expert evaluations) of the aims can create the illusion of the solution of the problem and can lead to incorrect conclusions. What has been said by no means implies the complete rejection of such approaches, but emphasizes that they should be based on quite natural hypotheses. For example, it is convenient to evaluate the degree of urgency of the attainment of various goals according to the size of the gap between their actual realization and the "ideal" (for the notions existing today) level of the corresponding indicators, which is specified for qualitative reasons.[4] The analogous approach to the evaluation of the territorial differences of certain aims or others is based on the amounts of their deviations from similar average union amounts (of course, with adjustments which level the regional peculiarities of the sociodemographic structure of the population and the influence of other analogous factors). As the tools of mathematical economics models are developed, the procedures of selecting alternatives and identifying preferences will be improved, but at the pressent stage the advantages of quite simple heuristic means hardly arouse doubt.

Another important aspect of the problem being discussed consists in the fact that the desired level of attainment of certain socioeconomic goals or others in principle can be ensured in the case of different versions of mutually consistent sectorial and territorial decisions. For the procedures proposed today for their coordination (in particular, those examined in /9/) there are no strict formal substantiations, which does not make it possible to answer the question: Is this coordination the only one and can it be improved with respect to one criterion or another (or with respect to a set of criteria)? Obviously, the search for the answer presumes the further development of mathematical theory and the solution of very complicated, previously unstudied problems. The use of already developed methods of the formalized analysis of the procedures of making difficult decisions (for example, /16, 17/ and other approaches) may be one of the possible approaches here, but so far only the first steps for relatively simple aspects of the functioning of the system in question have been made in this direction /18/.

2. The procedures of the coordination of the models in the SMOTR system require in-depth study. The inadvisability of the use for this of certain methods, which was established during an experiment /9/, stems from their poor convergence, the substantial instability of the decisions obtained at intermediate iterations or nonconformity of the premises, in case of which the indicated methods yield sound

results, to real economic processes. As a result heuristic procedures, which are based on the evaluation of the discrepancies of the results with respect to the volumetric indicators at the intermediate iterations, were used instead of the use of dual evaluations of the optimization problem when coordinating the decisions at the national economic and sectorial levels /9, 11/. Moreover, subsequently it was also necessary to reject the dual evaluations of the solutions of regional problems as standards of the rates of payments for natural and manpower resources (in the goal functions of the sectorial models) /19/. The developed heuristic procedures, although they confirmed their convergence during the experiment, require a detailed mathematical study.

The significant scale and the large number of the blocks of the system, which are to be coordinated, force us to give preference to those algorithms of "local" and "interblock" calculations, which ensure a sufficiently rapid convergence of the iterative processes of the interconnection of the individual models. Otherwise coordination cannot be achieved within the period which corresponds to the allowable time of elaboration of plan indicators in the real processes of planning. For the accomplishment of a small number of iterations in the process of connecting the individual blocks of the SMOTR system it is also necessary to use heuristic procedures extensively.

3. The initial version of the system /9/ was based on the exogenous assignment of a large number of indicators (first of all, ones pertaining to the end results of the functioning of the economy), moreover, in a very detailed list and with a breakdown by territories. The question of the means of forming all these indicators was taken beyond the system, which at the initial stage, when the question of the fundamental possibility of coordinating sectorial and territorial planning decisions was in the forefront, seemed quite justified. However, when preparing the SMOTR system for direct functioning in the process of planning calculations its closer coordination with the set of macroeconomic indicators and the aims of socioeconomic development should be ensured.

The incorporation in the SMOTR system of a consolidated dynamic intersectorial simulation model /15/ and the use of the principles of iterative aggregation for coordinating the obtained decisions with the detailed results of the calculations according to sectorial and regional models serve this.[5] In the future the SMOTR system has to be supplemented with a developed block of econometric models (see, for example, /21, 22/) for ensuring the mutual coordination of the macroeconomic proportions at both the initial and the final stages of its functioning.[6]

4. The reference version of the system /9/ was based on exogenously set standards of the consumption of all types of material, manpower and natural resources for the production of various types of output with a breakdown by territories for the different years of the planning period. The problems of the selection of efficient means of the substitution of resources and, consequently, the intensification of production thereby remained outside the system. Here it is possible to reiterate that such a simplification was necessary for the main goal of the experiment being conducted, but it is clearly inadequate for the accomplishment of the tasks of improving planning and management, which ensue from the decisions of the 26th CPSU Congress.

For the more detailed analysis of the effective means of substituting resources (first of all manpower resources and fixed capital) it is expedient to incorporate in the SMOTR system an intersectorial model which includes sectorial production functions /23/. Such an approach will make it possible to select the best directions of the intensification of production on the macroeconomic level. However, the substantiation of the corresponding decisions in a detailed list of types of resources at the level of sectors and regions remains a complex problem. One of the possible approaches is the introduction in the sectorial models of the modes of producing various products. Of course, here it is not a question of all the fundamentally possible modes, which would make the SMOTR system practically boundless and unfeasible. It is necessary to examine only those alternatives of the processing methods and technical decisions, which differ substantially (from the national economic point of view) in the indicators of the use of the most important types of material, manpower and investment resources. Consequently, the number of modes of production will be quite limited, they will have to be introduced for far from all the items being produced. However, in this case a new problem arises--the coordination of the aggregate sectorial production functions with the parameters of the new modes of production for a detailed list of types of output and resources for a long-term period. Its solution requires the further development of the tools of econometric and simulation modeling.

5. The experiments with the system /9/ and its subsequent modifications /11, 19/ revealed the insufficient adequacy of the organization of the regional model, which was proposed in /9/, for real economic processes. First, the criterion of optimality used in it (the maximum income of the workers of the sphere of physical production) resulted in essentially poor decisions which orient regions toward the maximum development of only wage-intensive sectors. Second, the production interests of the territorial systems, such as the need for the effective development of the production infrastructure, the assurance of the integration of the national economy of the region and the most economical combination of the enterprises of the different sectors, were not taken into sufficient account in the statement of the problem in question.[7] Third, the method of coordinating sectorial and territorial decisions, which was described in /9/, in point of fact did not envisage a sufficiently active influence of national interests on the regional structure of production. Fourth, in the SMOTR system procedures are needed, by means of which the solution of the problems of equalizing the levels of socioeconomic development of the different regions of the country would become possible, since this was not "automatically" ensured within the system of /9/. Finally, fifth, the social factors must be reflected more completely and perfectly in the regional models. First of all a system of restrictions on the use of manpower resources should be developed in order to take into account along with the traditional breakdowns (the sectorial and occupational pattern of employment) the demands on the efficient combination of the employment of men and women, its pattern with respect to the degree of difficulty and mechanization of labor and so forth. The need for such a development of the regional model can be substantiated by analogy with the establishment of the restrictions which stem from the tasks of protecting the environment against pollution. Some shifts or others in the sectorial structure of production for each given region can lead to both favorable and undesirable consequences for the demographic structure, some aspects of social behavior and so forth /25, 26/.

The elimination of the indicated shortcomings of regional models within the system /9/ required the corresponding modification of the statements of the tasks.

6. The orientation of the SMOTR system toward the coordination of the sectorial and territorial sections of the plan presumes the simulation in the process of its functioning of the mechanisms of the coordination of economic interests by means of the corresponding economic levers. The set of physical and value indicators of the plan should be formulated in such a way that during the subsequent implementation of the planning decisions made on their basis the individual links of the economy would be interested in observing them. Therefore, as was noted above, the SMOTR system provides for the calculations along with the physical indicators of the plan of economic standards--the aggregate values of the wholesale prices for the most important types of output and the rates of payments for the use of production resources. At this stage quite simplified procedures of the calculation of the economic standards should be used, and the retail prices and wage rates are regarded as exogenous. In the future improved blocks of the simulation of economic standards for the more complete consideration of the diversity of their functions, including the social demands on them, will be incorporated in the SMOTR system. The use in the SMOTR system of the principles of the construction of a simulation model is one of the possible approaches to the solution of this problem /2/.

7. Very voluminous data files (up to hundreds of thousands and millions of indicators) circulate in the SMOTR system, since the plan indicators are examined with a breakdown by sectors and territories for a quite detailed list of types of output and resources for a 10- to 15-year planning period with a breakdown by years. The noted circumstance requires the selection of such approaches to the construction of the individual blocks of the system, so that only the main fundamental interconnections would receive detailed reflection in them, while the relatively secondary dependences would be studied in an aggregated, generalized form (the principle of the selection of information). For example, the interproduct (intersectorial) national economic and regional models should contain only the most important coefficients in the matrices of the structural parameters when characterizing the expenditures of a product on a product, while the remaining expenditures should be reflected outside this matrix in the form of vectors of the expenditures for the national economy as a whole or with respect to aggregated sectors (the diagram of the physical-value intersectorial balance meets these requirements).

The observance of the principles of the selection of information will make it possible to concentrate the work on the detailed substantiation of the long-range values of the structural parameters on the fundamental interconnections of the system, to decrease substantially the nontrivial elements in the data files and to reduce thereby the probable number of errors when preparing them.

8. Since, as has already been repeatedly noted (see, for example, /7, 12/), the processes of planning cannot be completely automated, this presumes the extensive use in the SMOTR system of dialogue procedures of the work of the users with each of its blocks in an autonomous mode. To a considerable extent it is expedient precisely for this reason to rely on the modular principle of the construction of the SMOTR system, which makes it possible during its evolutionary development to gradually replace the simplified blocks (which were formed previously on the basis of palliative considerations) with more improved blocks so that this would not lead to the need for a fundamental change of the entire structure of the system and its interconnections with each such modification.

During the studies conducted in 1976-1980 it was possible to a considerable extent to provide a sufficient reserve for the use in the SMOTR system of dialogue procedures /11/.

The prelimiary version of the SMOTR system, which is described below and the experimental construction of which is planned during the 11th Five-Year Plan, was formulated with allowance made for the stated fundamental problems, which, of course, do not exhaust all the diversity of the tasks to be accomplished.

The Preliminary Version of the SMOTR System

The SMOTR system provides for the making of calculations for the determination of the overall prospects of the development of the national economy and for the coordination of the sectorial and territorial sections of the indicators of the plan on three levels:

I--the calculation of consolidated national economic proportions and their coordination with the aims of social and economic development in an aggregated list (18 sectors of physical production);

II--the determination of the consolidated national economic proportions and the verification of their interdependence with the sectorial and regional decisions in a detailed list (about 260 most important types of output);

III--the calculation of the indicators of the development of sectors (multisectorial complexes) and regions and the assurance of their combination with each other in the detailed list.

Within the SMOTR system are the functional blocks: a) "The Population and Manpower Resources"; b) "The Income and Consumption of the Population"; c) "The Nonproductive Sphere"; d) "Finances"; e) "Foreign Economic Relations"; f) "The Use of Nature."[8]

The indicated blocks are called upon to provide the necessary data for the calculation for the determination of: the aims on the national economic and the regional levels, the degree of balance of the indicators of the plans of the development of production with the available resources, as well as (with respect to some aspects) the coordination of the physical and value proprotions of socioeconomic development.

The functional blocks interact with all the levels of the SMOTR system (except the block "Finances," which is interconnected only with level I, and the block "The Use of Nature," which is combined only with level III).

The functioning of the SMOTR system is an iterative process of the successive coordination of the proportions which were determined at all its levels (see the block diagram). The calculations begin with the determination of the national economic aims (level I) on the basis of the decisions of CPSU congresses, the decrees of the party and the government, the preliminary versions of the main directions of USSR economic and social development for 10 years and the materials of the comprehensive program of scientific and technical progress.



General Diagram of the SMOTR System (excluding the functional blocks): solid line--direct ties, broken line--inverse ties

Key:

1. System of consolidated macroeconomic calculations
2. Aims of national economic development
3. Dynamic intersectorial simulation model (with a breakdown by 18 sectors)
4. Intersectorial model which includes sectorial production functions
5. Dynamic model of the physical-value intersectorial balance (with a breakdown by 260 types of output)
6. Model of the center
7. Blocks of sectors and mulitsectorial complexes (excluding the construction complex, transportation complex and complex of material and technical supply)
8. Block of construction complex
9. Block of regional models
10. Block of transportation complex
11. Block of complex of material and technical supply

For the more detailed substantiation of the aims it is proposed to use the results of the consolidated macroeconomic calculations in the automated system of planning calculations, while in the future, as was noted above, it is envisaged to include in the SMOTR system a special block of forecasting and consolidated economic calculations at level I, in order to have the opportunity to determine the values and permissible limits of the mutually coordinated changes of the main aims, as well as to take into account the factors which govern the effective interchangeability of living and embodied labor.

At this level a check of the feasibility of the aims during the planning period in question and, if needed, their adjustment are made by means of a dynamic simulation model of the intersectorial balance /15/. If the aims are feasible, the trajectories of the development of the economy, which ensure their realization, are chosen. The corresponding procedures are carried out during the man-machine dialogue by means of the algorithm of the solution of the dynamic intersectorial problem with the obvious consideration of the lag of capital investments.

The first stage of the calculations according to the SMOTR system at level II is the subdivision of the aims and proportions of the development of the economy with a breakdown by 18 sectors to the level of the detailed classification of the types of output. Let us recall that for the coordination of the indicators of the consolidated and detailed intersectorial models it is proposed to use the method of iterative aggregation.

In the SMOTR system a modification of the physical-value intersectorial balance is used as such a detailed model. The starting assignments and restrictions for the model of the optimization of the distribution of the production of sectors (multisectorial complexes), which are dictated by the target assignments, are established at the initial iteration by means of this model. An intersectorial model of a special type--the model of the center[9]--is used at the subsequent iterations for the verification of the coordination of the sectorial and regional decisions and the degree of their conformity to the aims. If the need to adjust the goals arises during the iterations, a shift is made to the dynamic physical-value intersectorial model, the parameters of which are derived by means of calculation procedures from the model of the center. Then a consolidated national economic model is formed by aggregation and the above-described procedures are repeated.

The calculations at level III begin with the models of the optimization of the distribution of the production of the sectors (intersectorial complexes). In the SMOTR system the sectorial breakdown of the planning calculations is represented by: 1) standard single-product models of the distribution of production by regions /9/, 2) specialized blocks of the models of the optimization of the development and distribution of the production of sectors and multisectorial complexes, to a greater extent than the models of the first type, which take into account their specific features. As the SMOTR system is developed, the center of gravity will shift to the models of the second type.

At this stage specialized model blocks have been realized for ferrous metallurgy /28, 29 and others/ and agriculture /30, 31/.

The model blocks of the complexes of construction /32/, transportation /33/ and material and technical supply /34/ occupy a special place in the SMOTR system.

The calculations for the block of the construction complex are made after the calculations according to the above-indicated models of sectors and multisectorial complexes of the first and second types, which makes it possible to check the possibilities of the implementation of the programs of development, which are outlined by the sectors, from the point of view of their backing by the capacities of construction organizations and the sectors of the material and technical base of the construction complex. Here the tasks of socioeconomic development with a breakdown by regions (in the area of housing and nonproduction construction) are also taken into account. At the first iteration the corresponding restrictions are determined on the basis of the initial aims and at the subsequent iterations in conformity with the decisions of the regional models at the preceding iteration.

The calculations for the block of the transportation complex can be made with sufficient validity only after obtaining information from the regional models, that is, after determining the indicators of the exports and imports of output and, by means of them, the arrival and departure of freight.

The system of the transportation of output, which is being formed and from which ensue the ideas of the most efficient forms of supply in the future and, then, of the development of the network of warehouses, is the basis for the calculation of the indicators of the development of the complex of material and technical supply. Consequently, for this complex the calculations should be made no earlier than the calculations for the transportation complex.

The standard sectorial tasks are intended for the determination of the proportions of the development and distribution of the production of the output of the corresponding descriptions on the basis of the criterion of the minimization of the adjusted national economic expenditures. The model contains restrictions:

a) the assignments on the minimum necessary volumes of the production of output of the corresponding description by years of the planning period;

b) on the consumption of the most important material resources;

c) on the capital investments in the development of the production of the given type of output;

d) regional limits of the production volumes, which are governed by the availability of natural resources (for the extractive sectors).

Restrictions a)-c) are established on the basis of the solution of the model of the center (at the first iteration, from the dynamic model of the physical-value intersectorial balance).

The balance correlations of the problem are established according to the principle of the dynamic interproduct model with allowance made for the lag of capital investments. In the case of substantial differences in the adjusted expenditures on the implementation of one version or another of the development of production in the model, as indicated above, the technological parameters are differentiated in conformity with the indicated versions.

The indicators of the adjusted expenditures are calculated with allowance made for: the current material expenditures (according to the estimates which are determined

from the solution of the central model); wages and payments for the use of manpower resources (the latter are calculated according to the estimates which are determined in accordance with the solutions of the regional problems); the payments for the use of natural resources (according to the estimates obtained from the regional models);[10] construction "rent," which reflects the tightness of the balance of the capacities of construction organizations by regions /32/ (according to the estimates which are determined in conformity with the solution of the models of the construction block); the transportation costs connected with the acquisition of transport-intensive material resources (according to the estimates ensuing from the transportation block); the standard coefficient of the effectiveness of capital investments (which is adjusted by iterations according to the solution of the model of the center).

The nonlinear dependences of the indicated estimates on the volumes of consumption of the corresponding types of resources are used for ensuring the necessary flexibility of the decision in the criterion /9, 11/.

One of the important and still unsolved problems is the consideration in the sectorial models of the impact from the integration on the territory of one region or another of various works, which leads to the saving of investment resources by means of the intersectorial use of the facilities of the production infrastructure and so forth. The exogenous establishment of the specific capital investments in the sectorial tasks does not make it possible to take the indicated circumstance into account. The elimination of the noted shortcoming comes up against obstables which are hard to overcome. The available experience of modeling the agglomeration effect is very negligible, is based on the use of very complex combinatory procedures of a heuristic nature and is limited to such a sphere of application as the industrial center (see, for example, /35/). It seems that the use of similar approaches at the level of the region as a whole will be impossible. In our opinion, the use of the econometric dependences of the regional specific capital investments on the indicators which characterize the degree of integration of the economy on the corresponding territory and the level of development of its production infrastructure, may be promising.

The set of problems of the optimum territorial organization of production and the assurance of the maximum possible achievement of the regional socioeconomic aims is solved in the regional block[11] of the SMOTR system. The complexity of the indicated set of problems presumes the making of calculations in the form of a sequence of specific stages.

Regional problem 1 is designed for the study of the production aspects of the territorial section of the plan. Of course, in this formulation the minimum necessary level of achievement of the regional aims should be a restriction. It is quite difficult to substantiate the content of the criterion of optimality of such a model. Owing to the complex nature of the production and economic development of regions, apparently, it is expedient to make the calculations with respect to the different goal functions (the minimum total adjusted or transportation expenditures, the rationalization of employment, the assurance of the required level of environmental quality) with the subsequent generalization of the obtained results by means of the appropriate heuristic procedures.[12]

Regional problem 1 includes restrictions:

a) on manpower resources with a breakdown by large sectors of industry and physical production and, if needed, with other breakdowns: by sex, social groups of the population and so forth (they are established in the functional block "The Population and Manpower Resources");

b) on the consumption of natural resources of intersectorial use: water and so forth (from the block "The Use of Nature");

c) on the capacities of the construction base of the region (from the model of the construction complex);

d) two-sided restrictions on the production volumes in the region (they are determined as a result of simulation experiments with the sectorial problems with a sufficiently wide variation within economically reasonable limits of their right sides and structural parameters);

e) on the conditions of the realization of the regional aims (from regional problem 2, at the first iteration by the expert method).

The indicators of the structure of production, which is obtained as a result of the solution, are then transferred to regional problem 2, which is designed for the selection of the trajectories of the development of the economy of the region, which maximize the degree of achievement of its aims. The system of such aims for the regions in principle can be the same as the system which is used for the calculations of the indicators of the plan at the national economic level /15/, which, however, does not rule out the possibility of the consideration of the specific goals at the regional level.

Since the regional model is an optimization model, the reduction of the different aims to a scalar criterion is necessary. The indicators of the degree of deviation of the values of the standards of the regional goals from the average values for the corresponding period for the national economy as a whole might be weighting coefficients in such a reduction.

Proceeding from the obtained estimates of the urgency of the regional goals, on the basis of a special simulation procedure the amount of the fund of the socioeconomic development of the region is formulated (by means of the model of the center).

Regional problem 2 is regarded as a two-stage problem. At the first stage the optimization problems are solved with allowance made for the following restrictions:

a) on the use of natural resources of intersectorial use;

b) on the use of manpower resources;

c) the functional relations which connect the variables of the model with the indicators of the criterion of optimality (they are established according to the data of the blocks "The Income and Consumption of the Population" and "The Nonproductive Sphere");

d) the balance of the formation of the main regional fund of socioeconomic development, the initial amount of which is determined from the solution of the model of the center (which at the first iteration is set by the expert method) and can be

decreased in case of a discrepancy of the solutions of the regional problems of the second type and the sectorial problems; the degree of the reduction of the regional fund depends on the parameter of management, the values of which are selected during the experimental use of the SMOTR system;

e) the balance of the formation of the additional regional fund of socioeconomic development as a function of the amount of the main fund; the additional fund can be reduced in case of a discrepancy of the solutions of regional problems 1 and 2; the degree of the reduction of this fund also depends on the parameter of management;

f) the balance of the formation of the needs for local types of output, the distribution of the production of which is not optimized in the sectorial problems;[13]

g) the limit of capital investments in the development of the production of local types of output.

The requirement of the maximization of the main and additional funds of socioeconomic development of regions is included in the goal function of regional problem 2.

At the second stage the calculation of the total volumes of the production and consumption of output on the territory of the region is made with allowance made for the results of the solution of the problem of the first stage and all the channels of consumption of the output (in accordance with the data of the functional blocks and the procedure of the recalculation of the need for investment property with allowance made for the adjustment of the solutions of the models of the sectors and multisectorial complexes in the regional models /9/). The corresponding calculations are made on the basis of the regional model of the physical-value intersectorial balance.

The indicators of the imports and exports of output as the initial indicators for the block of the transportation complex, and then of the complex of material and technical supply, are determined on the basis of the indicators of the production and consumption of output with a breakdown by regions.

Upon completion of these calculations a model of the center is formed, in which the degree of coordination of the sectorial and regional decisions in conformity with the requirement of the realization of the target standards of the national economic level is verified.

The composite vectors of the production of output and the consumption of material resources by sectors and multisectorial complexes, for which the plans of the development and distribution of production are optimized, as well as by regions in the area of individual works (the indicators of the production of output have a plus sign, the indicators of consumption have a minus sign), function as the structural parameters of the model of the center. Moreover, the composite vectors of the needs for resources for the functioning of the complexes of transportation and material and technical supply, as well as for the implementation of socioeconomic programs with a breakdown by territories are included among the structural parameters. The consumption of resources for the accomplishment of statewide tasks, which in the SMOTR system is regarded as exogenously set (other final consumption), is taken into account in the right sides of the restrictions.

The indicators of the degree of conformity of the drafts of the plans of sectors and the socioeconomic programs of regions to the criterion of optimality of the model of the center are the variables in the model, as is /3-6, 9/. Coordination of the plans is accomplished when the values of the sought variables are equal to one or differ from it within the range of permissible accuracy. If their values exceed one, the corresponding draft of the plan is too low, otherwise it is the other way round.

The model of the center contains the restrictions:

a) on the production and consumption of various types of output;

b) on the capital investments necessary for the development of sectors (multisectorial complexes) and the implementation of regional socioeconomic programs;

c) the relationships which characterize the dependence of the values of the regional target indicators on the components of the vectors of the regional socioeconomic programs (with allowance made for the results of the calculations in the blocks "The Income and Consumption of the Population" and "The Nonproductive Sphere").

The maximization of the degree of implementation of the regional socioeconomic programs is taken as the criterion of optimality. Two systems of weighting coefficients, which determine the importance of the deviation of one target indicator or another: for the national economy as a whole, from the corresponding standard value (from the national economic model of level I); in the given region, from its average value for the national economy as a whole, are used in this case. The greater the lag is with respect to one indicator or another, the greater the value of the corresponding weighting coefficient is.

If the coordination of the decisions of the models of the sectors (multisectorial complexes) and regions is not achieved, the iterative process is continued, for which the appropriate information is transferred to the models of the sectors (multisectorial complexes) and regions. The methods of adjusting the restrictions and parameters, which showed their worth during the previously conducted experiment /9, 11, 19/, can also be used in this case.

Of course, in the process of experimental use and during the evolutionary development of the SMOTR system further improvements of its structure and the procedures of coordinating the individual blocks will be needed.

FOOTNOTES

1. The differences of the simplified version of the system from the initial version are examined in detail in /9/, therefore there is no need here to dwell on them.

2. In this case "on the one hand, the initial applied version of the model complex will gradually become more complicated and be improved...; on the other, the idea of the ideal system, which constitutes the basis of its initial formalized description, will be improved as a result of the analysis of the data of the experimental calculations" /9, p 629/.

3. SMOTR--coordination of the models of sectorial and territorial decisions.

4. The idea of such an approach was proposed in /15/.

5. The algorithm of iterative aggregation for dynamic intersectorial models is proposed in /20/.

6. Of course, the direct use of econometric models will be possible only for the first 5-year period of the planning period, while for the subsequent periods it is necessary to construct simulation systems on the basis of these models.

7. Let us note the fundamental difficulty of the solution of the indicated problem within the SMOTR system without the clear consideration of the spatial distribution of production within the regions. Such an approach, which is obvious at first glance, leads to difficulties of an informational and computational nature, which are practically insurmountable at the present stage. In our opinion, one of the promising means of the solution of the posed problem involves the identification of an efficient structure of the comprehensive development of the region, which takes into account its different determinant factors /24/. The direct inclusion of the models of the intraregional distribution of production in the SMOTR system is advisable only for those regions in which considerable new construction is planned in the future.

8. The examination of the specific features of the enumerated functional blocks goes beyond the framework of this article. Let us merely note the fact that "Production," "Capital Investments," "The Production Cost and the Profit" and so forth are absent in the cited list of them, since the sectorial and regional links, as well as the model of the center realize the corresponding functions in the SMOTR system /9/.

9. The idea of constructing this model, which was first formulated in /3/, demonstrated its worth during the experimental calculations in accordance with the version of the system /9/.

10. Subsequently it is also proposed to include in the SMOTR system payments for pollution of the environment.

11. In the SMOTR system the union republics are regarded as regions, and the RSFSR is examined with a breakdown into 10 economic regions and the Ukrainian SSR with a breakdown into 3 economic regions /9/.

12. One of the possible approaches to such a structure of the criterion of the regional production problem is proposed in /24/.

13. The idea of distinguishing local works in the regional problems was proposed in /7/; the feasibility of this method was confirmed by experimental calculations using the example of one of the models for the Armenian SSR /36/.

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DEVELOPMENT OF UNHABITED REGIONS

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/Article by A. A. Vertman, V. I. Danilov-Danil'yan and A. A. Ryvkin (Moscow): "Strategies of the Development of Unhabited Regions"/

/Text/ We have grown so accustomed to considering the Tyumen' north as a national storehouse of petroleum and gas, Eastern Siberia as the main supplier of timber and Kamchatka as the fish shop of the country that we do not conceive of other forms of the development of these sparsely inhabited regions, except for the development of the production of valuable products, although they are very similar for each of them, for the purposes of meeting the vital needs of our economy. The national economy as a whole is allocating everything necessary to each region and expects to obtain the characteristic product, for the sake of which active development is being carried out.

Such logic is suggested by the experience of solving current problems of the building of the economy, which rests on the already created production base and reflects the needs of its improvement. Moreover, it is reinforced by the analysis of the cost effectiveness and therefore seems an irreproachable, and at times the only possible logic, regardless of which of the rational and formalizable criteria is taken as the basis of the calculation. Such an approach, if it is consistently adhered to, leads to a quite specific strategy of the development of uninhabited regions. What are the peculiarities and possible consequences of its implementation? Is its use justified under any conditions? Are there alternative strategies of development and, if so, how can they be implemented? This article is also devoted to the discussion of these questions.

1. The Strategy of Expanding Interaction

The development of a new, uninhabited and, moreover, hard to reach region requires of the society, which advanced such a task, actions which in many ways are incommensurable with the string of everyday decisions which create the sense of continuity, "smoothness" of economic life. If within the formed economic structure the appearance of a new element is a natural process which was readied by the functioning of all of its already existing lines and mechanisms, the formation of such an element outside this framework (no matter by what it was dictated--by distances, by the structure of the fixed capital, by the possibilities of training skilled personnel, by the diversity of the natural resources already committed to the economic turnover

and so forth) might be accompanied by problems which affect the very principles of the making of economic decisions and the organization of economic processes.

The strategy of development in many ways depends on the goal, for the sake of the achievement of which it is being undertaken, on which place the new region will occupy in the national economy in the future, on the proportion of the assets being allocated and so on. It is necessary to decide at the first stages of development whether the new element, which has been created under special conditions, will be only a narrowly oriented part of the entire economic system or whether it will acquire a specific functional completeness and a sufficient degree of internal stability in case of the retention of a one-product specialization (or a very limited specialization with respect to the list of output), for reorientation "on the move" in a number of instances may turn out to be much more expensive than the direct repetition of the already covered path.

Such is the peculiarity of all the processes associated with the development of the infrastructure: having begun to function, it permeates the entire economy and any reorganization, which involves its complete disconnection, is practically impossible. Thereby the development of the infrastructure to a considerable degree is irreversible, and a purely value approach[1] to the evaluation of the corresponding decisions not only does not given an idea of their real role, but is capable of serving as the base for the substantiation of clearly undesirable conclusions.

The present strategy of the development of uninhabited territories was formulated under the conditions when the penetration of new regions was of a "localized" nature, while the corresponding expenditures were knowingly covered by the impact of the use of the unique resources, for the sake of which development was undertaken, especially as there were not other means of obtaining them. The formulation and use of this strategy were historically dictated, and for a long time its choice was determined practically unequivocally by the conditions and goals of economic development. Its main features are: 1) a one-product orientation of production in each new region or an orientation close to it; 2) a pronounced aspiration to offset the difficulties of development by the quickest obtaining of an economywide impact; 3) the tendency to replicate the social structure of inhabited regions as quickly as possible.

The basic vital needs of the new region are met by deliveries from other regions of the country. With time, as the population of the territory being developed grows, the demand for brought in products becomes more and more subdivided and diverse. The level of self-sufficiency in this case practically does not increase. That is why we called the traditional strategy of the development of new regions the strategy of expanding interaction.

Given the goals and scale of development, which affect only individual points of an uninhabited territory, such a means turns out in practice to be the best, since it does not require any special adaptation of the usual economic structures, but envisages only their maximum activization for the achievement of the set goal. But if the question is raised of committing to the economic turnover "ordinary" resources, which previously were extracted in sufficient amounts in inhabited regions (Tyumen' petroleum was perhaps the first example), the nature and scale of development change in such a way that the strategy of expanding interaction reveals a number of properties, which it is already impossible not to take into account. Even a temporary increase of the output of the characteristic product receives a

priority rating as compared with measures and investments of a long-term nature; in other words, the obvious preeminence of production over reproduction appears, which we constantly run into in the extractive sectors of industry.

The task of obtaining as quickly as possible an economywide impact of development is accomplished in the case of a significant increase of the "internal friction" in the entire system: the hauls and chains of economic relations are lengthened, the total expenditures on the output of similar products increase (as a result of the change-over to the working of remote and hard to reach sources of raw materials), the proportion of employed people who work under especially difficult climatic conditions increases. The new region requires ever increasing investments, and the effectiveness of the additional investments begins to decrease immediately after the placement into operation of the main elements of the infrastructure in connection with the rapidly appearing need to change over to the working of harder and harder to reach or less rich deposits. In most instances this decrease begins much earlier due to the lag in the development of the infrastructure of new regions and the aspiration to use for this purpose the examples already being used in regions with ordinary climatic conditions.

A similar picture is forming in the matter of providing the new region with processing methods. The need for the quickest possible obtaining of an economywide impact of development does not stimulate the elaboration of special decisions. It is a question, as a rule, of the reproduction for use under extreme conditions of traditional and already tested processing methods or their modifications and of the attempt to reproduce on fundamentally different ground the technological chains which are in operation in inhabited regions with a developed infrastructure. The attempts to offset this basic gap between the potentials of the equipment and the conditions of its operation were reflected in the raising of such purely palliative problems as the output of equipment of "northern" or "tropical" design.

The raising of such problems does not simply shift the emphasis in the policy of development, it stimulates the replacement of the difficult and important task of the large-scale development of new regions with a number of minor and technologically obvious tasks, the accomplishment of which might not only not bring us closer to the goal, but might create additional difficulties on the road to it, since it will lead to the emergence of the corresponding industry which to some extent will begin to tailor the demand of the sectors surrounding it to its own interests. "Siberia needs a regional scientific and technical policy, and not simply the copying of decisions which are suitable for other regions" /1, p 5/.

In reproducing traditional processing methods in the process of development, we are thereby as if fixing the standard level of the capital-labor and power-labor ratios. If the formal indicators turn out to be higher, this happens most often due to a higher saturation with equipment, which is used gradually or is placed in reserve as a result of the decrease of its reliability under northern conditions, and not owing to the fundamentally different degree of the equipment of labor, which changes its nature and quality. Finally, the strategy of expanding interaction is incapable of stimulating the active use during the period of development of a new region and in case of its further utilization of the social advantages which arise in the case of the formation of a collective which is called upon over a long period to solve the entire set of problems connected both with the development of production and with the meeting of human needs (cf. /2/).

No matter how the negative aspects of the traditional strategy have manifested themselves at the present stage of the development of our economy, important national economic problems, which are connected with the development of rich deposits of minerals, which are of vital necessity to the country, in remote and hard to reach regions, have been solved on its basis. At one time this strategy was expedient; the question of the need to revise it arose in connection with the change of the goals and scale of development, while the possibility of its favorable solution is governed by new scientific and technical achievements.

Often there are cited in favor of the continuation of the implementation of the traditional means of development lines of reasoning, owing to which the corresponding measures permit substantiation both by means of mathematical economics optimization models and on the basis of simple common sense, while alternative suggestions cannot stand up to such a test. Since alternative strategies of development are also suggested in this article, we will immediately respond to such objections which, in particular, may also be directed to us.

Let us once again direct attention to the exceptionally important fact, in our opinion, that the large-scale development of remote and hard to reach regions, which is being discussed here, is the emergence of something fundamentally new, and not simply the extension of the old to spatial objects which previously were not drawn into the economic turnover. A new quality appears regardless of what strategy of development is chosen in the end. It will emerge even if none of the traditionally used technological methods undergoes any change, since the very fact of the formation of a large industrial region, which is at a considerable distance from all its economic partners, is capable of substantially changing the situation in the entire national economy.

If the calculations are made according to a model which reflects the structure of the economy which exists at any specific moment in time, no matter what national economic criterion of optimality which is rational from the point of view of today's notions we might choose, the "best" trajectory of development which corresponds to it would lead us to one version or another of the implementation of the strategy of expanding interaction in the case of the development of new remote regions. No other strategy in practice has a chance of being chosen within the framework of optimization models. This circumstance is explained by the peculiarities of the optimization approach: it is a means which has exceptional power under the conditions of a well-described stable structure. However, this means can lead to the selection of very irrational decisions, if the possible versions of the future structure do not lend themselves to a sufficiently accurate quantitative description in terms of the existing structure, that is, when the appearance of new elements and new processing methods and the change of the chains of economic relations are possible, which entails a significant change of the meaning of the indicators, which are included in the criterion or the limitations, and so on (see also /3-5/).

However, in the case of long-range analysis there is no need for the use of traditional means of optimization. Different approaches, which make it possible to examine from not a production, but a reproduction point of view the consequences of the implementation of a specific strategy, are needed here. The optimization methods, which ensure the formulation of specific decisions in situations, the quantitative description of which in rough outline has been completed, can be useful only after its selection has been made.

The possibilities and limitations of the efficient use of all the methods of economic analysis, which are based on the assumption of the measurability and comparability of the factors which characterize the object of the study, are approximately the same (the traditional means of optimization are the most complete and consistent development of this assumption). In particular, the appeal to the theory of the effectiveness of capital investments, according to which only measures with a payback period not longer than the standard payback period should be selected for implementation, is illegitimate when evaluating strategic decisions. This criterion is good only in the case of the comparison of measures of a tactical nature, which fully correspond to the formed reproduction structure.[2] On its basis it is possible to select one of the versions of the renovation of a blast furnace or the location of a textile factory, but one should hardly direct one's attention to the results of such an intention when substantiating the changeover to furnaceless production of steel or a new general-purpose power carrier. Strategic decisions, as a rule, involve expenditures (be they even small at the initial stages), which for a long time do not provide a "measurable" economic impact.

2. On the Features of the Reproduction Process, Which Prompt the Choice of an Alternative Strategy of Development

The specific features of the reproduction process which has formed in our national economy during the past three five-year plans are such that it is hardly possible to carry out the intensive comprehensive development of uninhabited regions on the basis of the strategy of expanding interaction.

Thus, from the point of view of involvement in the international division of labor, the situation of the USSR and the developed capitalist countries is fundamentally different, which is revealed especially distinctly when analyzing the situation with respect to practically all types of mineral raw materials. Here we will limit ourselves to just one example--we will describe the possibilities of providing metallurgical production with raw materials.

The tendency to involve ever richer iron ores has been observed in ferrous metallurgy of the developed capitalist countries. The average content of iron in the ores being used for the nonsocialist world in 1950 was 48 percent, while its content in the ores allocated for export was 57 percent; in 1974 the latter indicator had increased and came to 62 percent /6/. The leading capitalist countries are importing a larger and larger portion of the iron ore being consumed (see the table), regardless of the distance of seaborne transportation.

Proportion of Imported Iron Ore in Total Consumption, Percent /6/

Years	Country					
	United States	England	Italy	France	FRG	Japan
1950	6	42	25	0	35	60
1960	32	49	65	4	50	89
1974	34	84	97	31	96	99

Included among the main exporters of rich iron ores are the developing countries, particularly Brazil and India, where accessible deposits are located, as a rule, near the seacoast.

In our country, which is oriented mainly toward the use of its own natural resources, the situation with the supply of many types of mineral raw materials is forming differently. Let us continue the discussion using the example concerning iron ore. In 1974 Academician A. I. Tselikov wrote: "...with each year we have to change over to the use of less rich and less accessible ores, as well as to the use of more expensive coking coals. Thus, for example, the average iron content in the crude ore in 1960 was 44.6 percent, in 1970--37.3 percent, while in 1975 36.5 percent is anticipated.... the proportion of the expenditures on raw materials and basic materials in 1956 was 42 percent, while in 1970 it was 56.5 percent" /7, p 5/. In the next few years in connection with the development of the Lisakovsk deposit, the average iron content at which is 35-40 percent, the proportion of lean ores will not decrease. At the same time the lengthening of the distance of the hauling of the rock body to 25 km (in connection with the deepening of the pits), the increase of the overburden ratio to 5-6 tons per ton of ore, the increase of the thickness of the overburden to 180-200 m and the depth of the pits to 600-800 m and more are anticipated /8, pp 56-58/.

Thus, the objective conditions are such that our economy is forced to use nearly half as rich crude ore as the developed capitalist countries; moreover, it has to be extracted with considerably greater and ever increasing expenditures. Practically all the ore has to be concentrated. The influence of such factors (to a greater or lesser extent and in different combinations, but in the end also a significant influence) is being keenly felt in many sectors of the industry which extracts and processes mineral raw materials. The maintenance of the raw material complex requires the expansion of the output of products of machine building--a circumstance which has a most serious influence on the reproduction structure. In the USSR "the proportion of the final product in the gross national product in 1960 was 50.3 percent..., in 1975--about 46 percent (in current prices)... raw materials and materials make up more than half of the gross national product. Up to 40 percent of all the productive capital and manpower resources are required for their production. The capital investments in the raw material sectors make up more than 27 percent of all the investments in the national economy. As a result, the capacities of machine building are engaged mainly in work for the raw material and other sectors of heavy industry, only about 10 percent of the output is being produced directly for consumption by the population (in the United States it is 35-40 percent)" /9, pp 30, 32/.

In case of the continuation of the prevailing trends of the development of the mining complex the problem will be aggravated even more as the deposits in inhabited regions are depleted. Hence should follow the orientation toward such a strategy of development, which does not increase the loads on the resource-consuming sectors in other regions, but makes it possible to transfer such works to new regions.[3]

The economic conditions, which enabled the developed capitalist countries to work intensively the rich natural deposits of a significant portion of the world, to a significant extent were governed by the extensive use of seaborne transportation, which is carried out by a specialized fleet. Thus, from 1959 to 1969 the freightage for the seaborne transportation of 1 ton of iron ore from Brazil to the FRG decreased to one-sixth /6/. To a significant extent the development of highly mechanized loading and unloading equipment and the building of large-tonnage ships which ensure the optimum versions of loading were conducive to progress in the area of seaborne transportation.[4] Now a paradoxical situation has formed, when the local

transportation of ore even over a short distance by rail turns out to be considerably more expensive than its long-distance transportation by sea.[5]

The inevitability of long-distance and even super long-distance (on a world scale) overland transportation is a peculiarity of our country. We cannot replace overland transportation by seaborne transportation to the same extent as the developed capitalist countries, since we should direct our attention primarily to the involvement of our own resources, which are located in the heart of the mainland, while the main coastal zone of our seas, to which an outlet from the regions being newly developed is possible, is free of ice for only a short time during the year.

The requirement of the development and extensive introduction in the uninhabited regions being developed of special overland transport, which would have a high degree of economy when supply lines are laid and would provide an opportunity for all-weather operation, should be added now to the previously drawn conclusions. Paved roads, which are justified only in areas with a sufficiently high population density, where they fulfill a multipurpose social function, cannot be such transport. Rail transport, which is expensive and is also incapable of supporting under the conditions of Siberia and the extreme north a network of all-weather supply lines, is also not suitable for this purpose. Not only a new type of transport, but also such a means of constructing roads, which would make the solution of the problems connected with the expansion of their network an extremely local matter which does not require the attraction of resources from the center, should be found. Only in this case is it possible to speak of the prospects of the large-scale development of new uninhabited regions.

3. The Strategy of the Minimal Initiating Impulse

The planned rearrangement of the reproduction structure on the basis of a long-range economic strategy, of which a new approach to the comprehensive development of uninhabited and remote regions on an extensive scale should be a component, is required for the achievement of the social and political goals of development, which are facing our country. Here two more significant considerations can be added to the above-cited arguments about the inapplicability of the strategy of expanding interaction for the solution of this problem.

First, the interests of the socialist community as a whole dictate the need to extract in our country a significant portion of the natural resources for meeting the needs of the economy of the CEMA member countries; this presumes the rapid involvement of new deposits. Second, the implementation of major plans within the framework of the strategy of expanding interaction requires the attraction of a significant amount of additional manpower. Thus, 100,000 people are engaged in the construction of the Baykal-Amur Railway Line, 70,000 are engaged in the construction of the Bratsk Complex /1, p 5/. "But in the north each worker costs the state (attraction to northern regions, higher wages, more expensive services, losses from the turnover and so on) 17,000 rubles more a year than the same worker in the European regions of the country" /12, p 6/. In spite of the higher coefficients, which are added on when paying wages, and other benefits, the turnover of personnel in the regions being developed is 1.5-fold higher than in the central regions /1, p 5/, and although the net migration since 1975 in Siberia has been positive /Ibid./, the region is experiencing an acute shortage of personnel, which is moderating substantially the rate of its development. During the next decade due to the "second era

of the war" the situation with manpower resources will get worse, since the total increase of manpower resources will be only 650,000 people a year, while during the 10th Five-Year Plan 2.5 million people, that is 3.4-fold more, annually flowed into the national economy /13, p 4/. It should be borne in mind that the Central Asian region, which is notable for little migration of the population, accounts for a significant portion of the anticipated increase.

The shortage of manpower resources in combination with the need to involve the potential of the eastern and northern regions of the country points to the need to elaborate such a strategy of development, which would require the minimum diversion of manpower and other economic resources, which are being allocated for the goals of development by other regions, and the creation in the new regions of a system which is capable of self-reproduction and expansion.

The strategy of the minimal initiating impulse, which should also ensure the solution of the problems raised above, can be regarded as an alternative to the strategy of expanding interaction. Let us cite a list of requirements which this means of development, which is polar to the preceding one, is obligated to meet.

First, instead of stimulating the limitation of production by the output of only products which conform to the character of the development of new regions, the alternative strategy should prompt the creation of a system which takes into account as much as possible the possibilities of self-sufficiency and self-reproduction.

Second, after making the initiating capital investments the further process of development should take place with the minimal support from outside, owing to the intensive use for this purpose of the internal resources of the region being developed. As the output being produced by the new region increases, its contacts with the rest of the economy should not increase at a rate which leads production.

Third, an orientation toward the development of transportation lines, which meet the conditions of patchy (localized) settlement and permit all-weather use, is necessary.

Fourth, new comprehensive and previously substantiated technological decisions, which are based on a higher power-worker and capital-labor ratio, should be essentially used. An increase of these indicators even by a factor of 10 is entirely justified by the fact that the cost of keeping one worker in new regions, as was already noted, is much higher than in the center, while the processing methods being used in the process of development not only should offset such a difference, but can be based on technical decisions which will become popular in the future, although given the existing structure of the national economy they require greater investments and a greater consumption of power.

Fifth, the direct implementation of the policy of the complete use of natural resources is required. The development of a new region is not the creation of a sum of sectorial processing methods; a complex is needed, in which all the processes are interconnected and are subordinate to the task of forming a new organism which is capable of self-development. Therefore the reproduction approach is predominant in this case.

Sixth, an orientation toward self-sufficiency of the system in foodstuffs, which is produced by the industrial method, according to the most extensive products list, is necessary. At the same time the problems of transporting and storing shipments of foodstuffs should be solved.

Seventh, the system should have a power supply, which is specific and autonomous during the first period of development, and a systems power supply, which is based as much as possible on local features and resources during subsequent periods.

In order to make clearer the idea of the strategy of the minimal initiating impulse, let us turn to a direct description of one of the possible versions of the technological realization of such a strategy.

4. An Example of the Stage-by-Stage Realization of the Strategy of the Minimal Initiating Impulse

Stage 1. It is connected with the organization of the flow-line plant production of transportable, multipurpose modules at enterprises located in inhabited regions. Let us explain the tasks of this stage and the means of its accomplishment.

It is proposed to organize the production, for example, of portable nuclear power stations with a capacity of 25-50 MW, that is, which corresponds to the power of the main marine power plants of icebreakers.[6] Of course, the efficiency of the power conversion at such a modular nuclear electric power station will be lower than at a nuclear electric power station which is equipped with reactors like the VVER-1000 /16/, but such a decision is entirely justified, since it substantially facilitates the production of the most labor-consuming part of the reactor--the vessel. It is quite obvious that the production of the vessels of the powerful VVER-1000 reactors with a diameter of 4.5 m and a height of 10.85 m /16, p 62/ is possible only at individual enterprises which are fitted out with unique equipment, for example, the Atommash Plant.

The vessels of reactors with a capacity of 25-50 MW, in connection with the substantially smaller dimensions of the assemblies (on the condition, of course, of the assurance of a nuclear class of the quality of the design) can be produced at practically any machine building plant of general specialization, without unique equipment, and it is expedient to direct the attention first of all of the enterprises located in the eastern region toward the production of such standard minireactors. It should be expected that in the case of the organization of the flow line production of the vessels of minireactors at the renovated enterprises of the region a substantial decrease of the cost of this product due to certain factors, which distinguish the production of similar items from a custom product, will follow. The same advantages are also characteristic of other multipurpose devices, for example, electric furnaces, which can be used both for the smelting of metal and for the melting of nonmetallic materials, particularly for obtaining the melt of cement clinker.

Thus, the use as a power plant of a transportable modular nuclear electric power station (TMAES) and other multipurpose equipment, which is produced at specialized enterprises of inhabited regions and permits transportation by water, is a characteristic feature of the proposed strategy.

Stage 2. The delivery of a TMAES with a capacity of 25-50 MW by water, primarily by navigable rivers during the period of high water, and in special cases also by sea with subsequent movement via rivers and their tributaries, is envisaged here. Such a power source is sufficient for ensuring the operation of mini-enterprises, that is, highly mechanized and automated enterprises of small capacity, which are not inferior in their technical and economic indicators to large integrated enterprises. In those instances when a single module does not meet all the needs of the enterprise, including the infrastructure, modules are combined into a group with a capacity of up to 100-150 MW.

Taking into account the enormous territory of the eastern region, its intersection with waterways and the abundance of identified deposits of high quality mineral raw materials, it is possible to claim that in most instances there is an opportunity to bring the modular transportable units as close as possible to the deposit. In accordance with the proposed strategy iron ore deposits, even ones which are comparatively small, but have a high concentration of iron and are located near a waterway (up to 30-50 km), are worked first of all.[7] The goal of the second stage is to set up near such a deposit a support center, which includes a TMAES, all-weather supply lines, which connect the deposit with the river, the housing block for the work shift personnel who service the deposit, the TMAES and other works of the support center.

In some instances it is expedient to build as an all-weather supply line a monorail, and in the case of large freight flows a pile-supported monorail /18-20/. The importance of monorails for solving transportation problems was discussed at the 26th CPSU Congress /21/; in our opinion, the pile-supported monorail is most suitable for the conditions of the eastern region (this was already noted in /22/), since it is the only means of transportation which the danger of drifts does not threaten, since the monorail can be deliberately raised higher than the level of the snow cover. The pile-supported monorail is notable for the minimum metal content; moreover, banks, as well as expensive and hard to produce rails are not required for its construction. The piles and beams of the pile-supported monorail are produced from stressed reinforced concrete with the use of reinforcing iron, and in special cases stone casting items, which are obtained by the melting in electric furnaces of local rock, including metallobasalt, can be used. The driving of the piles and the drilling of holes for the piles now can be performed with a high level of labor productivity, especially with a sufficient amount of electric power which is supplied by the TMAES. Taking into account the comparatively shallow depth of the drilling of the holes for the pile, even in hard rocks it is possible to expect a high speed of drilling, especially when using plasma torches and other energy-consuming equipment.

It should be emphasized that given the high power-worker ratio, which is ensured by the TMAES, it is possible to attain a now unachievable level of labor productivity in the construction of the monorail, the preparation of the deposit for working and the use of an electrical processing method in the process of extracting and concentrating raw materials. The possibility of using the piles as supporting pylons for electric power transmission lines is also an important advantage of the pile-supported monorail. The short spacing of the pylon-piles (10-15 m) makes it possible to use aluminum wires, while in the traditional designs of electric power transmission lines they have to be made bimetallic due to the low mechanical characteristics of pure aluminum.

The multipurpose use of the pile-supported monorail is substantially increasing its competitive ability.

The very promising proposal to build a pile-supported monorail for the transportation of especially heavy loads was recently advanced /23/. Of course, the creation of a new type of all-weather communication lines raises many problems, but their solution is technically possible and economically necessary.

According to the proposed strategy the support center is serviced only by the work shift personnel with a 12-hour workday and a work shift of 20 days each, which makes it possible to reduce to a socially acceptable minimum the expenditures on the nonproduction infrastructure and to ensure the minimum diversion of manpower resources for the economic development of uninhabited regions. A mandatory component of the support center is the hothouse system--the so-called phytotron, that is, a system for the production of biomass /24/, which uses the secondary heat resources of the TMAES. The inclusion of the phytotron in the support center makes it possible to solve two problems. First, the increase of the temperature of the water being withdrawn from the condensers of the turbines to 60-80°, as is expected, will make it possible to decrease the dimensions of the turbine, which is very important for the transportable plant. In this case, it is true, the generation of electric power will decrease slightly, but this shortcoming under the specific conditions of the region is offset by the possibility of creating a self-contained, ecologically safe cycle of the water supply of the TMAES on the condition of the take-off of heat for the maintenance of the mechanized hothouse-phytotrons. The phytotron can also be located in a standard transportable insulated tank or in a prefabricated structure. Various versions of mechanized phytotrons with a culture medium on the basis of scraps of wood, dirt and so forth are known. Such structures are notable for a high labor productivity with an output of up to 70 kg of biomass a year per square meter of surface at a base temperature of 18-20° /24/. The smoothness and all-weather nature of the output of products in a wide assortment are a merit of phytotrons, which are heated by hot water from the TMAES.

Self-sufficiency in protein and the exporting of feed protein meal to regions, where a shortage of this valuable product is felt, substantially improve the economic indicators of the support center. Let us note the possibility of accumulating the protein meal in transportable specialized tanks and shipping them during the navigation period.

Stage 3. It envisages the delivery to the support center of a transportable mini-enterprise of ferrous metallurgy consisting of blocks: the hydrogen block, the reaction vessel-smelting block and the block of finished products. For the production of ferrous metals out of rich ores from small-scale (in general) sources it is proposed to use hydrogen as a reducing agent. The feasibility of such a decision is dictated by the possibility of reducing as much as possible at the first stages of the development of uninhabited regions the amount of most labor-consuming mining work which is connected with the extraction of coal or another carbonaceous product. The consumption of power for the electrolysis of water even now is not more than 5.0-6.0 kWh/m^3 with the minimum personnel for servicing the plant /25/. A drawback of electrolyzers is their high metal content and comparatively low productivity (up to 500 m^3 a hour per unit /25/), but this drawback under the conditions of the region is offset by the possibility of obtaining a reducing agent with the minimum labor expenditures and with a long life of the equipment between repairs.

In recent times a very productive direction of the plasma chemistry obtaining of hydrogen has been undergoing development at the Institute of Atomic Energy imeni I. V. Kurchatov /26/. The use of this method can decrease the area being diverted for the production of hydrogen, as well as decrease somewhat the power expenditures. However, even given the present level of power consumption the power being generated by a standard TMAES with a capacity of 50 MW will make it possible to obtain up to 60 million m^3 of hydrogen a year, which ensures the output of not less than 45,000-50,000 tons of reduced iron.[8] One of the most important advantages of hydrogen reduction is the possibility of carrying out the process with the minimum temperatures (600-870°) /6, p 25; 27/, which decreases the materials-output ratio of the processing method, the labor expenditures and the repair costs. The drawback of hydrogen reduction--the difficulty of organizing large-scale production--in our case disappears by definition.

For the smelting of the sponge of reduced iron it is also feasible to use electrothermal units with the lining removed, in spite of the higher electric power consumption which is characteristic of such units (1,000-1,500 kWh/ton) /28, 29/. A considerable number of such units are known (induction furnaces with a cold crucible, electroslag units for the smelting of powder and sponge, arc and plasma furnaces and others). The excessive consumption of electric power in this case with allowance made for the specific nature of the region is repaid by the lower materials-output ratio of production, lower expenditures on repair and other advantages, which ensure a labor-saving policy. It should be borne in mind that the cost of power (rated), for example, at the Novo-Voronezhskaya AES, is 0.57 kopeck per kWh /8/, at a TMAES it will be somewhat higher, but the absence of losses in the networks and the operation of the nuclear electric power station only in the base mode to a certain extent offset such an increase.

When obtaining at the mini-enterprises on the order of 45,000-50,000 tons of high quality steel a year the possibility arises to produce not less than 40,000-42,000 tons of reinforcing iron with a strength of up to 80 kg/mm^2, which substantially decreases the consumption of metal /30, p 127/. The most suitable unit for the mechanical working of such an amount of metal is presses, especially as in the USSR great gains have been made in the area of the development of presses which are distinguished by a low metal content /31/. Different versions of the technology of the mechanical working of metal are possible, but the discussion of these versions is not a part of the task of this work, the goal of which is to explain the general system of measures which make it possible to implement the most advtanageous strategy of the development of the eastern region.

The obtaining locally of up to 40,000-42,000 tons of high quality reinforcing iron makes it possible to create at the same support center or near it a plant of reinforced concrete items. The proportion by volume of the reinforcing with allowance made for the high strength of the metal obtained from especially pure stock does not exceed 0.8-1.0 percent, that is, the output of the mini-enterprise of ferrous metallurgy ensures the receipt of about 600,000 m^3 of reinforce concrete items. For their production 200,000 tons of cement and 400,000 m^3 of gravel or other fillers are required. It can be assumed that 2,500-3,000 m^3 of reinforced concrete items are necessary for the construction of 1 km of a single-track pile-supported monorail with a capacity of 1-2 million tons a year /19/; thus, the output of the plant of reinforced concrete items, as elementary calculations show, ensure the construction of not less than 200-250 km of pile-supported monorail a year; this makes it possible to link the given support center with other similar centers, which

are located along the general route which is chosen so as to link by all-weather communication lines the regions in which valuable mineral and fuel resources have been detected /17/. With the complete implementation of the strategy the region can be provided with a system of all-weather communication lines in the form of latitudinal routes and meridional sections which link them, which will ensure the shipment of the output to ports of the Pacific and Arctic Oceans from any point of the region.

Let us return to the examination of the structure of the standard support center, which is built at the third stage of the proposed strategy. As was noted, 200,000 tons of cement a year are needed for the supply of the production of the piles and beams of the pile-supported monorail. This amount can be obtained at a cement electrotechnical enterprise which is equipped with electric arc furnaces for the synthesis of clinker from ingredients. At present the electrical technology of producing cement is virtually not used, since the consumption of electric power theoretically is 800-1,000 kWh per ton, while in practice might be somewhat higher /32/. Nevertheless the changeover to the electrical technology of producing clinker, in our opinion, is inevitable even in inhabited regions for the reason of the ecological danger of the traditional system /33/. The production of the main element of the traditional technology--furnaces for the roasting of the clinker with a length of up to 120 m--is possible only at a limited number of powerful machine building enterprises which are capable of machining large parts. The transportation and installation of rotating cement furnaces are also very difficult and expensive. The metal content of standard electric furnaces, which are also suitable for the synthesis of clinker in a liquid state, is about 18 tons/MVA, that is, 2.5 kg per ton of clinker /34/; moreover, it is technically possible to deliver them in assembled form; it is advisable to use as a power source a TMAES with a capacity of 50 MW--the same as for a miniplant of ferrous metallurgy.

The opportunity exists for the further improvement of this processing method by the building of plasma shaft furnaces (the data on them are cited in accordance with /35/), which eliminates the need for scarce graphite electrodes; moreover, the plasmatrons can run on air or on steam. The hourly productivity at such an enterprises with an annual production of 170,000 tons of clinker (200,000 tons of cement) should be about 25 tons. The building of such furnaces with a capacity of 10-25 MVA is technically possible already at the present level of plasma technology. The power component of the expenditures in the case of an electrical technology of the production of cement will probably amount to 10 rubles per ton; in the central regions it is, of course, lower, but with the delivery of cement to remote regions transport is loaded up, and the expenditures increase many times.

Simple calculations on the basis of the cited indicators of the output of cement and the power-output ratio of its production show that a TMAES with a capacity of 50 MW, which is located at the support center or near it, in the region of the quarry for the extraction of gravel and limestone, is capable of ensuring not only the operation of the cement enterprise, but also a high power-worker ratio of the extraction of raw materials (up to 150 kWh/m^3), which makes it possible to use electric excavators and to eliminate the bringing in of diesel fuel, as well as to meet the need for electric power of other works, first of all (when the raw materials are available) for the processing of lumber by means of a electrical processing method /36/. At the first stages of the development of an uninhabited region it makes sense to convert all the timber being logged into liquid products, primarily synthetic fuel, creating reserves of the latter, and after the building of a

system of all-weather communications lines to carry out the shipment of commercial lumber over the pile-supported monorail. The fuel reserves created make it possible to ensure traffic over the pile-supported monerail by means of locomotives which are equipped with gas turbines; here it is feasible to turn to aircraft engines which have run their life and the number of which is steadily increasing as aviation is developed and will continue to increase in the future. As the route of the pile-supported monorail advances, newer and newer forest tracts will be committed to the turnover, which will make it possible to carry out the selective felling of only inferior species for conversion into fuel, which can be hauled to the support centers over the finished sections of the pile-supported monorail.

For the hauling of lumber to the pile-supported monorail in hard to reach regions it makes sense to use transport aircraft, which are being developed intensively in many countries /37/, for air hauling increases the keeping capacity of the timber.

In addition to a stationary wood chemical enterprise the use of floating mobile autonomous plants, which are suggested by the (Izikawadzima-Harima) firm (Japan), is possible at the support center (see /38/). The enterprise is set on a barge measuring 215 X 44 X 20 m and as needed can be towed onto the shore, and while floating the plant is operable even at a temperature of -50°. The annual productivity of the enterprises is 250,000 m^3 of wood. The dry products, which are tied in packets, are taken away by self-propelled barges. At the plant 102 service personnel are called for, while the power necessary for the enterprise is generated by burning the scraps. It should be noted that comfortable housing for the work shift personnel is a part of the complex. The combination of such an autonomous timber processing enterprise with the support center has definite advantages--both social and technical (the supply of materials for the construction of housing, phytotrons and other objects).

Stage 4. Its main task is the approach of the pile-supported monorail to the deposit of hard coal or lignite, and in some areas to deposits of especially valuable raw materials, for example, the ores of tungsten, copper, tin and others /17/.[9] As the pile-supported monorail is built, the opportunity arises for the shipment of the raw materials through ports of the Pacific Ocean coast or their processing in regions in which the expenditures on construction are minimal and manpower resources are available.

Stage 5. The organization of support centers, which are oriented toward the production of aluminum alloys with the use of the coal-heat reduction of aluminosilicates in powerful electric furnaces, is feasible when a supply of solid fuel is available /10/. The raw materials for obtaining aluminum alloys with silicon (staurolite, disthene sillimanite and so forth) are prevalent practically everywhere. Moreover, the ash of coals often contains a significant amount of alumina. The advantage of the coal-heat method of obtaining aluminum-silicon (and from it pure aluminum /11/) is a 10-15 percent reduction of the consumption of power as compared with electrolysis[10] and the possibility of creating a large, ecologically safe works by means of the gradual increase of the number of standard modular units.

As at the preceding stages, the supply of power is ensured by the TMAES. Other units of such a standard power technology complex are also being supplied in plant design on pontoons and can operate both afloat and on the shore. In this case construction proper in the uninhabited region is essentially completely eliminated

and is replaced by the installation of transportable units on foundations. From the cited technical characteristics it follows that the complex, which includes a TMAES with a capacity of 50 MW, should ensure the production of up to 25,000 tons of pure aluminum a year and the obtaining of up to 40-60 million m^3 of hydrogen, which can be used either for the synthesis of ammonia (20,000-30,000 tons) with subsequent delivery by pipeline, for the reduction of iron ores (up to 50,000 tons of steel) /27/ or for the additional generation of electric power, which, of course, is less expedient.

Silica, which when synthesizing clinker from ingredients makes it possible to decrease appreciably the amount of extraction of raw materials for the production of cement, is a byproduct of the technology of processing aluminosilicates. In the standard power technology complex (50 MW) 50,000-60,000 tons of silica are formed annually, so that the production of 180,000-200,000 tons of cement with the consumption of 200-250 million kWh of electric power is possible (such characteristics follow from the already cited data on the power-output ratio of the production of cement, the chemical composition of aluminosilicates and the volume of production of aluminum). This requires the situation of a TMAES with a capacity of 40 MW in the region of the open pits for the extraction of raw materials, but in the vicinity of the aluminum enterprise. As at the third stage, cement is suitable for the production of reinforced concrete items when reinforcing steel, which is supplied by the mini-enterprise of ferrous metallurgy, is available.

The creation at the fifth stage of the development of the strategy of a more powerful integrated support center consisting of an aluminum enterprise, an enterprise for the production of ammonia, a mini-enterprise of ferrous metallurgy, an electrotechnical cement enterprise, a plant of reinforced concrete items and phytotrons with the obtaining of power from modular nuclear electric power stations ensures in addition to the main products annual additional deliveries of piles and beams for the pile-supported monorail with a length of approximately 200-250 km /19/, that is, as the strategy is developed, the rate of advance of the pile-supported monorail increases, the opportunity arises for the building of spur lines and connections primarily in the meridional direction.

Thus, the first stage is oriented toward the building of enterprises which use solid carbon in one form or another (lignites, shales, hard coal, bitumens) for the implementation of the processes of coal-heat reduction in electric furnaces. Quite a large number of these processes are known, they do not reduce, of course, to only the reduction of aluminosilicates and the obtaining of aluminum. Copper, nickel and other ores can undergo primary processing by a similar means with subsequent refining of the obtained products in the regions most convenient for this, but precisely the production of aluminum should be developed first of all, since its use in construction, especially in the northern regions, guarantees the most economical labor-saving policy /40/. Plants for the production of sheet aluminum and items made from it (panels and so forth) should be located in the areas most suitable for habitation by a permanent population, perhaps in the regions gravitating toward the Baykal-Amur Railway Line, large rivers and the seacoast.

Stage 6. Its goal is the creation of a construction industry on the basis of aluminum alloys for the purpose of the further increase of the production volumes and the involvement of the resources of remote regions in the national economy. When a system of pile-supported monorails and the region's own production of aluminum structural members and reinforced concrete items exist, the building on an

industrial basis of permanent large-capacity enterprises becomes possible, the second spiral of the increase of the output volume thereby emerges. Of course, machine building enterprises for the supply of equipment to metallurgy and the mining industry should be built first of all, and craneless buildings of the light-weight type with spans of 60-90 m, which considerably reduces the labor-intensity and cost of construction, should undergo the greatest development /41, 42/.

Stage 7. As the route of the pile-supported monorail is developed, the support centers become more and more remote from the regions of road construction, in connection with which the delivery of piles and beams from the created centers may be unprofitable. In this case the plant of reinforced concrete items is changed over to the production from local raw materials of cast stone, that is, large-tonnage blocks which are suitable for laying in the dams of GES's. The water resources of the northern region amount to 100×10^{10} kWh /43, p 231/, and in general it is possible to knowingly choose a site in the region of the support center, which is suitable for the construction of a GES. The production locally of cement, reinforcement and stone (for example, basalt) blocks, which are obtained by the fusion of the appropriate rocks, substantially reduces the labor-intensity and construction time of the GES, just as does the availability of comfortable living conditions of the work shift staff of installers. The construction of the GES should be completed before the end of the service life of the nuclear electric power station,[11] that is, no later than 25-30 years after the start of the development of this region. When the GES is put into operation, the need for TMAES's disappears, and they can be transferred to other regions. The production volume at the support center will accordingly also increase, that is, precisely GES's as sources of the most inexpensive and ecologically safe power will become the basis of power engineering of the eastern region.[12]

Small initial capital investments and a small number of personnel with a subsequent increase of the volumes of output are a distinctive feature of the described strategy. Let us cite only very rough estimates, since further studies are necessary for precise characteristics. Here we will proceed, first, from the planned capacity of the enterprises according to the cited description of the stages of the implementation of the strategy and, second, from the anticipated values of the capital investments. We will estimate the latter by taking as the base data the reporting and standard data /43, 45 and others/ and taking into account, when it seems necessary, expert adjustments. For example, according to /43, p 130/ the specific capital investments in a nuclear electric power station exceed 270 rubles/kW, but with allowance made for the specific nature of a transportable station we have taken 400 rubles/kW.

The initial investments in a standard support center will be (our estimates of the specific capital investments are indicated in parentheses): a transportable modular 50 MW nuclear electric power station--20 million rubles (400 rubles per kW); a mini-enterprise of ferrous metallurgy (including a mine with an annual output of 70,000-90,000 tons of ore)--30 million rubles (750 rubles per ton of rolled metal products); a phytotron with an area of 400 m^2 with the output of protein mass--100,000 rubles (250 rubles per m^2); an electrotechnical cement enterprise with a capacity of 200 tons of cement a year, including a 40 MW TMAES and open pits--80 million rubles (300 rubles per ton); a wood chemical enterprise with the annual conversion of 90,000 m^3 of wood into liquid fuel--10 million rubles. The total is about 140 million rubles with a work shift size of 500 people. In addition to the

production of protein and synthetic fuel the construction of not less than 200-250 km of pile-supported monorail is the result of the annual activity of the standard support center.

It is possible to assume that capital investments in the amount of 1.4 billion rubles for the construction of 10 support centers with the diversion of not more than 20,000 people will make it possible in a brief time to create a network of all-weather communication lines, which stimulate the further development of the system.

However, a transportation network and other objects of the infrastructure, which are built in the course of three or four five-year plans, are far from the only result of the implementation of the strategy of the minimal initiating impulse. After the third stage each support center can already ship up to 250,000 m^3 of wood a year; beginning with the fourth and especially the fifth stages, the system will be capable of producing for the needs of the national economy diverse products of the conversion of solid fuel, high quality ferrous and nonferrous metals, as well as power-consuming products of other sectors.

It is important to emphasize that the cited version of the stage-by-stage implementation of the strategy of the minimal initiating impulse is based on quite well-known technological decisions; with respect to the main elements some experience of industrial use has been gained, although their extensive production has not been set up. The stated considerations, of course, are preliminary and require further detailed economic and technological study, territorial referencing, the preparation of design proposals, the evaluation of the sequence of construction of the individual objects and so on. Of the formal means the approach to the formulation of goal programs /46/, which is also applicable to the more general problem of the formation of balanced scripts of development, may prove useful here.

5. The Principles of the Formulation of a Mixed Strategy

The practical development of new regions will most likely not follow either the pure strategy of expanding interaction or the pure strategy of the minimal initiating impulse. One or another mixed version, which has to a greater or lesser extent traits of each of the two indicated versions, can be chosen depending on how intensively and comprehensively it is proposed to carry out the development and what its scale is. We will cite here a number of the principles of the formulation of such a mixed strategy, on which attention should obviously be focused when making final decisions.

1. The Structure-Forming Nature of the Decisions Being Made. The economy is a sluggish system, and probably the main manifestation of the time lag consists in the fact that the amount of resources, with respect to which during any specific segment of time quite "free" (that is, not predetermined by the past) decisions can be made, is very small. The chosen directions of the use of these resources also form for the most part the strategy of long-range development and the choice of the moments of the start of development. And although at first the implementation of such decisions does not require great resources, they govern in many ways the nature of the enormous expenditures which will be made subsequently. Consequently, particular attention to the distribution of these resources is necessary, it should not be determined by their present negligible proportion in the total amount of the

expenditures. At the same time the distribution of even large amounts of current resources, which is due to sluggishness, does not require so careful an economic, as well as a social analysis (in particular, because the expenditures on such an analysis are not recovered owing to the time lag), there it may be a question of a search for means of saving, of substitution, management and so forth.

2. The Timely and Sound Choice of the Goals of Development. They determine the structure of the characteristic product being brought from the new region and dictate to a certain extent the choice of a strategy of development and the base processing methods. Here the adjustment of the goals in the process of development as a result of the appearance of additional information and new technical decisions is not ruled out.

3. The Maximum Possible Capacity of the System Being Development and Some of Its Elements for Reproduction, Including the Support of Life. The level of such a capacity is also an element of the choice of a strategy of development. The decision is made subject to the remoteness of the region being developed from inhabited regions, the availability of manpower resources, accessibility (including climatic conditions), the proposed period of the working of the resources of the new region, as well as the urgency of the national economic need for the new product.

4. The Diversification of Means of Transportation. A necessary condition of efficient development is the creation of an inexpensive reproducible intraregional system of transportation lines, which ensure all-weather freight and passenger traffic. The location of the support centers of development in the vicinity of navigable rivers (including in the vicinity of rivers which are navigable only during the period of high water) makes it possible to deliver heavy cargoes and to bring out a part of the products, which permit storage, by water. The construction of pile-supported monorails of the lightest possible type in practice solves the remaining problems. In case of the need to ensure the transportation over such a monorail of a large-size load in assembled form from the port to the place of installation either a second rail can be laid or, if two-rail traffic exists, the transportation of a unique load can be carried out by means of a girder which rests directly on both rails.

5. The Diversity of the Forms of the Use of Manpower Resources. Since development is being proposed in the case of the patchy (localized) settlement of the new region, it is necessary to resort to combined forms of the use of manpower resources. Comfortable premises for the life of the service personnel should be included in a state of plant readiness in the set of equipment. The work shift method and large intervals between shifts are feasible for the maintenance of remote objects; this will require the extensively organized combining of occupations and the combination of shift work with regular work at the main (base) project in an inhabited region.

6. A Substantially Higher Capital-Labor and Power-Worker Ratio. Since the keeping of one worker in regions being developed is substantially more expensive than in other regions of the country, processing methods, which save living labor as much as possible by means of its replacement with capital and power, are justified. Electrical processing methods, which are not competitive under ordinary conditions (for example, plasma drilling, the obtaining of hydrogen by electrolysis and so on), can be used when developing these regions. The orientation toward ordinary equipment of "northern design" has in this connection only a limited value, since in most cases

it means not a qualitative change of the units, but only an increase of their reliability, as a rule, by means of the increase of the weight of the components or special (cold-resistant) and therefore more expensive materials. Thereby only a formal increase of the capital-labor ratio with the retention of its quality and with the reproduction of the processing methods being used in developed regions is achieved.

7. The Preferential Orientation Toward the Delivery of Equipment Not Reproducible in the Region in a State of Complete Operational Readiness. It is necessary to minimize the construction, adjustment and start-up operations locally, which will make it possible to decrease substantially the number of employed people. In the case of the plant production of equipment its reliability and service life increase. The assurance of the transportability of units of complete operational readiness allows for their placement on craft which permit towing. The overland transportation of especially large units for short distances is possible over a two-pile way (see paragraph 4).

8. Priority to Processing Methods Which Ensure Smooth and All-Weather Production. The usual evaluations of the efficiency of processing methods in regions with severe climatic conditions may be biased. Thus, in a number of cases the shaft method of mining, in spite of its lower productivity, may be preferable to open-cut mining. The agro-industrial method of producing agricultural products, including the keeping of artificial-light cultures (for providing the system with meat and dairy products in the case of the stabling of livestock), is more advantageous as compared with the practice of traditional agriculture even under the conditions of a favorable summer.

9. The "Seine" Principle. This principle implies the active use of such an important economic resource as the wealth and vastness of the territory of uninhabited regions. The stage-by-stage development of the network of all-weather transportation lines makes it possible to gradually involve in the economic turnover deposits with a high content of the useful component even if these deposits are small. The opportunity arises, first, to combine modern technologies of mining with traditional technologies in the case of working in inhabited regions and, second, to decrease the capital investments in the development of traditional technologies in inhabited regions in order to make a structural shift with the changeover to the complete processing of raw materials which occur everywhere. The offsetting of the limitation of imports of rich raw materials from other countries will thereby be achieved.

10. The Intensive Involvement of Renewable Energy Sources (the Wind, Rivers, Tides). In most of the uninhabited regions of the European north and Siberia the number of windy hours in a year comes to 6,500 /43/ (70 percent of 1 year's time), which is comparable to the average operating time of thermal electric power stations. With the location of wind-powered electric power stations along the pile-supported monorails the latter can be used as pylons of electric power transmission lines, having in mind to unite all the electric power stations of the region into a unified line system, since as a result of the noncoincidence of the windy period at different points of the region the period of supply of the system with wind power is lengthened. The minimum expenditures of labor when operating wind-powered electric power stations, their transportability and possibility of production at any machine building enterprises fitted with standard general purpose equipment are acquiring particular importance.

At the same time as the creation of a unified power system of the region it is necessary to envisage, first, the appropriate proportion of works which tolerate a deviation during periods of the lack of power (for example, the electrosynthesis of clinker or other materials in a plasmatron, the melting or heating of powder materials in a plasma column, the decomposition of water by means of electrolysis, the production of biomass in phytotrons and others) and, second, the possibility of stabilizing the power supply of continuous works by means of the backing up of the windmills, for example, with a few gas-turbine units which burn small reserves of hydrogen, which can be formed during the periods of intensive wind loads.

As to the technological, organizational and other problems which are advanced by the analysis of the strategy of the minimal initiating impulse, some of them will be solved with the proper orientation of scientific research and experimental design work, while the others are governed by the current reproduction structures of the economy, toward the rearrangement of which, in particular, this strategy is aimed, and as the use of its components is expanded, such problems will not be aggravated but, on the contrary, will lose their urgency and importance.

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FOOTNOTES

1. That is, an approach which presumes the possibility of a monetary calculation of all the components of the expenditures and the result in all its aspects and further algebraic summation for obtaining a summary characterization of the type of absolute cost effectiveness.

2. This circumstance is underscored by the indication of the applicability of standard methods of the evaluation of the effectiveness of capital investments only in the case of the analysis of "minor" measures.

3. Hence stem the urgency of the changeover to the production of ferrous metals only of high quality and of durable metals, the need for the especially careful handling of them and the urgency of their rapid displacement by aluminum, which it is technologically possible and now economically feasible to smelt on a large scale from raw materials which occur everywhere, for example, from kyanites, staurolite and other aluminosilicates /10, 11/.

4. For example, mixed-cargo ships like the OBO (ore-bulk cargo-oil) first are loaded with coking coal on the eastern shore of the United States, then go to Brazil, where they take on iron ore until fully loaded, and head to Japan, on the way back they stop at the Persian Gulf and are loaded there with oil, which they deliver to the United States. As a result of such a combination the cost of the shipment of cargo is reduced by 25 percent /6, p 57/.

5. Thus, the transportation of ore from the province of Quebec (Canada) to Pittsburgh by rail over a distance of 1,890 km is nearly twice as expensive as shipment by sea to Japan over a distance of 21,800 km. In terms of ton-kilometers the shipment of ore by rail in this case is 22-fold more extensive than its transportation by sea /6, p 58/.

6. "The creation of mobile nuclear electric power stations and heat-supply stations is an important problem for nonferrous metallurgy and other sectors. The bringing of the source of power closer to enterprises, which are dispersed in remote and hard to reach regions, is of great national economic importance. The delivery of organic fuel to these regions is expensive, and its year-round transportation is impossible.... However, the industrial production of mobile nuclear electric power stations... by the corresponding departments so far has not been set up" [14, p. 46].

7. For example, in the Western Siberian plain iron ores occur at a depth of 150-200 m in a band of 1,500 km from the far north to Kulunda /17, p 14/.

8. The consumption of hydrogen per ton of reduced iron is 800-1,000 m^3 /27/.

9. Enormous reserves of mineral raw materials have already been proven in the region, in the future a further considerable increase should be anticipated, since "the study of the Western Siberian platform lowland constitutes 70 cm of drilling per square kilometer, which is rated by geologists as 'exceptionally poor'," /39, p 16/, while the same indicator for Eastern Siberia is estimated at only 0.2-0.3 m per square kilometer /17, p 9/.

10. In /10/ it is shown that the consumption of power for electrolysis is 15,300 kWh, while in the case of electrothermics it is 12,700 kWh per ton of pure aluminum.

11. TMAES's have an important advantage as compared with powerful stational nuclear electric power stations: after serving its life the reactor module can be moved to a specially equipped burying area, which is the same for the entire system.

12. In some regions of the Pacific Ocean coast large-capacity tidal electric power stations (PES's) might become such sources. For example, the Penzhinskaya PES is capable of generating up to 200 billion kWh a year with a capacity of 100,000 MW /44/.

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INTENSIFICATION, MANAGEMENT OF REGIONAL DEVELOPMENT

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[Article by O.S. Pchelintsev and G.S. Ronkin: "Intensification and the Management of Regional Development"]

[Text] On the basis of an analysis of the interbranch and territorial forms of production socialization, the article examines the problems of a rational combination of branch, territorial, and programmed planning and management. Special attention is given to the functions of organizing interbranch interaction and ensuring a stable proportionality between economic production and social development in regions and cities. The interconnections are revealed between intensification and the development of settlement forms, particularly on the basis of the example of areas being newly developed.

The strategy of economic intensification, an efficient use of production potential, a comprehensive economy of all types of resources, and an improvement of work quality received a further development in the materials of the 26th CPSU Congress. The objective necessity for this strategy stems from a substantial curtailment of sources for extensive development and from the impossibility of maintaining high growth rates for national income by means of a quantitative increase in material, labor, and natural resources.

The shift to the use of intensive factors of economic growth forms the basic content of the current stage of the economy's development. It requires profound structural changes not only in production life, but also in social life and in its system of values, in our very way of living.

A further growth of the demands for an improvement of the territorial structure of production and of settlement patterns as the spacial environment of socio-economic development is also connected with intensification. "Every step in the development of production requires the existence of a definite environment for the reproduction of its agents which is composed of material preconditions, forms of intercourse, and the socio-cultural potential of individuals themselves." [11] Such an environ-

ment as the necessary condition for the division of and changes in labor is built on the basis of the totality of decisions on the siting of enterprises and the development of cities.

The importance of territorial factors is connected with the objective spacial definiteness of production. As K. Marx wrote, "...if a certain level of development of the productive forces is given, definite space is also always necessary." [1] This correspondence of the spacial environment to the level and character of the development of the productive forces is an individual instance of the general material production determination of activity. The latter always unfolds in an historically concrete socio-spacial environment which forms not only its limitation, but also (to a substantial extent) the content of its goals. The objectively determined nature of the spacial forms of production is reflected in the territorial organization of the economy (the planned combination of resources, types of activity, and structures of population settlements) as an inseparable part of the overall management of socio-economic development.

The consistent performance of a spacial (territorial) analysis should lead to the discovery of a certain new quality in economic processes. The emergence of such a quality in the real process of the formation of a regional system is connected, as we shall see later, with production concentration and population urbanization.

Concentration acts above all as the "material condition of cooperation." [2, p.341] "The very fact of social contact," K. Marx wrote, "gives rise to rivalry and to a unique excitation of vital energy." [2, p. 337] Specific territorial conditions of intensification are set by the development of concentration.

The chief of them is the activization of the full aggregate of horizontal (territorial) relations. It is the growth of these relations (which are proportional, in the estimate of Academician V.M. Glushkov, to the square of the growth of production") that becomes the objective basis for the formation of territorial (city and regional) systems. The latter comprise a part of the national economic complex, so that from the point of view of the general tasks of management only the entire socio-economic system, strictly speaking, possesses the property of integrity. However, this integrity is not an assigned property in advance. Any socio-economic formation "is transformed into an integrity only during the course of historical development. The establishment of a system with such integrity is formed by its moment, systems, process, development." [3]

The development of socialist society can be regarded as precisely this kind of transformation of the elements of a system (in this case of branch and territorial cells) into a single socio-economic complex. The formation of the specific functions of these elements and their differentiation forms therefore one of the necessary conditions for the establishment of the systemic integrity of the economy. But at least two important conclusions follow from this. First, a substantial part of the resources which provide for technical-production activity in a given territory not only can but must be (without detriment to systemic integrity) under the management of branch and (or) programming (interbranch) agencies. Secondly, a region also has to act as an independent subject of economic activity which possesses specific, unduplicated functions and its own economic interests, and this again does not form any hindrance for the realization of the systemic integrity of the economy.

This defines the rich significance of regarding regional economics as a single whole.

First, "...the individual elements and branches of the economy are not definite magnitudes; their importance changes in relation to the combinations in which the elements and branches find themselves. It is necessary therefore to study the economy in its whole and to compare systems of economy, and not individual elements." [10] In other words, a study of regional economics as a whole proves to be useful from the point of view of the branches themselves, and permits them to make use of the full aggregate of horizontal relations.

Secondly, as L.I. Brezhnev has noted, with a deepening of territorial cooperation "the overall advantage greatly exceeds the mere arithmetic sum of the components--the efforts of each republic, rayon, and oblast." [8] But this means that the point of view of the systemic whole, by reflecting the unity of human activity and the integrity of the productive forces [12] promotes an activization of economic interaction on a given territory and is a necessary condition for the minimization of the unfavorable side effects of individually made branch decisions. [13]

Only on this basis does the real organization of the economy as a single whole become possible, "that is, not of a single farm, not of a single branch of the economy, not of a single enterprise, but of the total of all economic relations, the total of all economic circulation, even though of a small locality." [7]

This kind of organization corresponds to the internal needs of production itself. The fact is that at the current stage intra-branch sources of development and the socialization forms which correspond to them are becoming increasingly exhausted. More complex territorial and interbranch forms are coming to the forefront (industrial centers, territorial production complexes and local agro-industrial complexes, group systems of populated areas, and regional scientific and technical and scientific production complexes.)

It is these forms of socialization which are specific for developed socialism and it is with them that the decisive possibilities for a fundamental increase in production efficiency and for the use of the achievements of the scientific and technological revolution are connected. However, the realization of these possibilities depends upon a number of conditions, including the development of a theory itself of the interaction of a developed branch system with developing systems of territorial and special-purpose programmed planning and management.

The very term "region" is ceasing to be simply the general name for the intermediate levels of a territorial structure of the socio-economic system or the aggragate of natural, social, and technical phenomena on a given territory. It requires a more concrete definition which is connected, in particular, with the special position of a region in the branch system of management and with the emergence on this soil of a specific complex of economic production and scientific and technical problems which is what determines the place of the regional system in the accomplishment of the tasks of intensification. It is from this that the first function of regional planning and management follows--to provide the territorial conditions for an intensification of social production by means of stimulating the processes of concentration and interbranch cooperation.

The active role of territorial managerial agencies in organizing interbranch interaction is a result of the specific character of interbranch effects, their objective "invisibility" for the branches themselves, and the impossibility of separate calculation and realization.

The concrete forms of participation by regional agencies in the organization of interbranch interaction can vary from coordination to direct inclusion in the organizational structure of management of a territorial production complex (TPC). As was noted at the 26th CPSU Congress, there has already been created an Interdepartmental Territorial Commission at Gosplan USSR for the development of the North Siberian petroleum and gas complex. A number of proposals on the organization of the management of complexes (Kansko-Achinsk fuel and energy complex, Kola industrial mining complex and others) which have been developed in the All-Union Scientific Research Institute of System Research [14] also envisage the participation by local agencies in the interbranch structures of programmed management.[1] Definite positive experience has been gained in this field in the creation of territorial coordination councils, for example, at the Krasnoyarsk kraykom for the Kansk-Achinsk Fuel Energy Complex [KATEK]. [15]

Intensification, as has already been noted, is a fundamental change in the structure and direction of the reproduction process which influences all aspects of socio-economic development, including its territorial structure. At the present time this influence, however, has still manifested itself insufficiently, which is connected in the first place with the existence of a number of countervailing factors which give rise to a tendency toward a continuation of extensive growth under conditions when the sources for this have already been exhausted, and, secondly, with the peculiarities of the intellectual tradition ("paradigm") of territorial analysis which (to a considerable extent) was formed as a definite antithesis to the branch approach and emphasized primarily non-economic values such as geographical equilibrium, optimal city size, territorial population stability, and so forth. It is not surprising that the sharp increase in the demands upon efficiency have still not found the necessary reflection in the structure of territorial research. The negative consequences of such a situation and its consequent underestimation of the territorial approach as oriented chiefly toward the consumption of resources and not toward an activization of their reproduction do not require commentary.

Under these conditions there have to be serious changes in the structure of regional analysis and in the very conception of a region. They have to provide a greater reflection for the criteria of economic efficiency, the advantages of a territorial concentration of production and population, and the demands of the present-day large-scale organization of industrial centers, territorial production complexes, and group systems of populated areas. And, on the contrary, there has to be a retreat to the background by those orientations of territorial analysis which do not correspond to the demands of intensification, such as the already mentioned extensive equilibrium, the autonomous development of large, medium, and small cities, and the absence of any kind of serious calculation of economic effects and losses.

The emphasis upon intensification and territorial rationalization as the basic content of the economic development of regional systems by no means decreases the importance of the idea which is becoming increasingly crystallized in our literature of the region as an element in the socio-economic system which is responsible first of all for the overall social development of the population on a given territory.[2] What is simply involved is two aspects of the activities of a region which ensure the performance of its basic function: the aspect of relations with production, with the system of branches in the first case, and the aspect of the organization of non-production activities, of the processes of the growth of welfare and culture in the second. It is clear that the realization of a region's social function can only be successful in the event that in its relations with the branch system it does not act in the role of a simple "petitioner" of resources. Usually in this connection the functions of checking the balance of the amount of branch demands for local resources are pointed to. However, as has already been noted, the participation of the region in the processes of organizing interbranch interaction (and the realization of the emergent effect connected with it) becomes decisive.[3]

To this it should be added that the social goals of regional development themselves come together today in intensification. And not only in the trivial sense of dependence upon resources, but also in the sense that any progress in the sphere of social relations demands today a fundamental change in the attitude toward labor, a strengthening of labor and production discipline, and the creation of an atmosphere of cultured work at all of the levels of economic activity and management.

Under the conditions of intensification the influence of the working, living, and rest conditions of the working population on the content and final results of economic activity is substantially strengthened. Overall changes in these conditions increasingly become the basis and the nucleus of the entire management of socio-economic development and of the formation of a way of life. The growing importance of territorial factors is determined by this. It is by means of the realization of the latter that the coordination of social goals and the structure of activities and intercourse which is necessary for an increase in efficiency is achieved. The very content (structure) and level of social and labor activity depend to a large extent upon the model of the social-spacial environment which has been adopted.

The achievement of one of the most important proportions of socialist reproduction is connected with regional factors--balance between the economic production and social development of social subsystems at all levels of the territorial hierarchy, beginning with the individual settlement and ending with large economic regions, republics, and the country as a whole. This task cannot be directly accomplished within the framework of branch or programmed management: it requires the specific activity of regions and cities themselves.

From this follows the second chief function of regional planning and management--the ensuring of the social and ecological balance of branch development at all levels of the territorial hierarchy, and the correction of planning and designing decisions which have been made on the basis of primarily departmental economic criteria.[4] We are speaking about the rational use and protection of natural re-

sources and the development of the non-production sphere and the infrastructure which by their nature are territorially fixed and visible only from the side of regional analysis.[5]

At the current stage, when the basic legal questions of the assignment of these functions to local managerial agencies (Articles 146 and 147 of the USSR Constitution, and also special legislation on the Soviet of People's Deputies) have been decided, the tasks of strengthening the economic organizational mechanism of territorial development are coming to the forefront. The most important of these tasks is the development of the resources base of non-production construction and a substantial increase in the capital available to consumption.

This requires, in our view, both a further development of economic relations between enterprises and local agencies,[6] and the creation of special mechanisms for the territorial redistribution of expenditures for social purposes (this role could be played by centralized funds or social and regional development programs).

As for the region's social function itself, it can only be correctly understood in the context of the general development of the social system of our society which is characterized above all by a further development of state systems of education, health care, and culture, institutions of organized recreation and rest, housing construction and distribution, civic improvements, and so forth. The dimensions of the corresponding changes and the necessity in this connection to review many priorities, especially in the distribution of capital investments, makes this task a field for the application of above all programming methods of planning and management with the participation of such central agencies as Gosplan, the State Committee for Labor and Social Questions, the Ministry of Public Health, the Ministry of Culture, and others. An important role in the organization of state social programs could be played by permanent commissions of the Presidium of the USSR Supreme Soviet and of the Supreme Soviets of the union republics.

In relation to the social sphere, the aggregate of social programs acts in approximately the same role as any programmed part of a plan in relation to the plan as a whole. It provides the functions of the mobilization of resources, an acceleration of structural changes, and the dissemination of the general conditions and advanced standards of the socialist way of life over the entire territory of the country. However, programs form only the nucleus of the social sphere.

Its further development is necessarily connected with providing a diversity of possibilities and expanding the choice of individual variants of the socialist way of life. And in this field the principle of the territorial self-organization of the population and the wide dissemination of Soviet and cooperative principles must, in our opinion, play a determining role. (This, incidently, also applies to the structure of the social programs themselves, especially to the coordination of the processes of their fulfillment at the level of individual regions and populated points).

The special role of the territorial system manifests itself in bringing about a reorientation of the economy from a direct increase in consumption to the develop-

ment of the individual: this is a direct consequence of the fact that the production of things (as a precondition for the growth of consumption) can quite easily develop at a distance from the consumer himself; but the production of services and of the conditions of activity (as a precondition for individual development) has to coincide with him. (This is not contradicted either by the concentration of services in general, or by their concentration in mass rest zones where people live only temporarily.) The spacial connectedness of the conditions of development and population geography requires their territorial organization.

Only on a regional basis is it possible to combine a socially usefull equalization of living conditions with their maximum diversity. Urbanization is the objective mechanism of this dual process. Forming a single socio-spacial environment which is based on the diversity of choice and on intense intercourse, it makes a definite standard of activity ("the urban way of life") an imperative. A system of social guarantees as the foundation of the effective interaction of the processes of inter-individual differentiation and equalization becomes a reflection of its conditions in distribution policy. [17]

Differences in the spacial position of individuals (and social groups) which form an important and still insufficiently considered component of social welfare are connected with the territorial organization of settlement patterns and the hierarchical structure of populated areas. Methods of life activity, like methods of production, are defined in space. Two aspects have to be distinguished here: 1) the dependence of well-being upon natural conditions and individual inclinations with an equal access to goods and services; 2) the historically inherited or newly developing differences in the access to jobs and services and rest which result in the obtaining one and the same set of goods with unequal costs, or (more often) in a territorially caused differentiation of the structure of consumption and the way of life.

As far as individual differences are concerned, here we can speak only of the granting to individuals (within the framework of state migration policy) of the right to choose places of residence and work. The influence of unfavorably natural conditions has to be compensated for by an improvement of living conditions.

However, the central category of a territorial analysis of well-being is undoubtedly spacial-temporal accessibility.[7] The choice of places of work and the possibility of obtaining an education, rest, and so forth differ among areas, settlement forms, and individual points. In aggregate these differences form a type of socio-spacial environment (habitation environment) which determines the object, ecological, and socio-economic conditions of vital activity.

The concept of spacial-temporal accessibility has not received an adequate expression in traditional economic theory. The latter ties well-being solely to consumption whose regulators are income and prices. In reality, a consumption choice is always made on a definite foundation of individual development whose objective conditions turn out to be most important from the point of view of the long-term perspective. Especially today, using the words of F. Engels, "the struggle for existence--if for a moment we leave this category in force--turns into...

a struggle not only for the means of existence, but also for the means of development...." [4] From a theoretical point of view, this is equivalent to the assertion that well-being is a function not only of current (or past) consumption, but also of its potential.

One of the main characteristics of intensive economic growth is connected with providing accessibility--"the creation for the population of relatively equal conditions of access to mass material, spiritual, and cultural goods and services, and to the choice of occupation and of meaningful labor and rest." [19]

The analysis of accessibility rests on a theoretical idea about the territorial variation of use value (and not only costs), and about the unequal nature of economic alternatives both in time and in space. The creation of one and the same object (for example, a housing block) takes on a completely different meaning depending upon place and location: for example, in Siberia or in a city being newly built it is more important than in a long settled area with a high housing norm. A given effect along with expenditures has to be condidered in defining a rational sequence of capital investments. This goal is served by the normatives of spacial-temporal accessibility of the places of the application of labor, services and rest which form (along with scientifically substantiated consumption norms and ecological-city building parameters of the conditions of living) the normative base of the social management of territorial development. Resource support for this class of normatives is becoming an important factor in increasing the effectiveness of the social consumption funds and creating maximum equal conditions of access to them for all of the strata of the population, regardless of residence and "departmental membership."

The development of regional management promotes an orientation by the socio-economic mechanism toward the realization of a wide range of social, cultural, ecological, and other values and goals. This involves bringing about a further substantial increase in production in inseparable connection with the harmonious development of the individual and environmental protection. The branch principle acts here as a specialized element of the management system which is responsible for the realization of chiefly economic production values and goals. The direction of its development is determined above all by the necessity for regulating access to resources (including the dissemination of the payment principle) and increasing the economic commitments of production associations and ministries to other elements of the socio-economic system (territorial and programmed management agencies, public organizations) which are responsible to a great extent for the growth of well-being and the realization of social goals. An effective regulation of demand for resources by the branch system (which is practically not limited today by any serious demands upon return on resources), a consideration of the growing insistence of social, ecological, cultural, and other needs, and a more active redistribution of resources among the different elements of the management system become under these circumstances necessary instruments for overcoming the inertia of extensive growth. The measures now being carried out to develop self-financing in production associations and industrial ministries have to be subordinated to the accomplishment of this task.

An increase in the social and labor activeness and the realization of the creative potential of the individual are inseparably bound up with an intensification of intercourse. The latter, in general, forms the "necessary and specific condition for the development of man in society" [20], and the objective mechanism and continuous process of the reproduction of the social structure.[8] The forms of intercourse are determined by the development of the productive forces and together with them form the basis for the formation and development of social space. As a result of the scientific and technological revolution a considerable intensification of intercourse is occurring. "Man's changed place in the system of social production is leading to a sharp increase in the role of the social environment which forms this man and which today is primarily the urban environment."[9] [21]

The problem of intercourse has a clearly expressed spacial character. K. Marx had already written that the universal development of the productive forces engenders "universal intercourse between people... locally restricted individuals are replaced by world historical, empirically universal individuals." [6]

Urbanization serves as a concrete expression of this process. It forms the moment, result, and precondition of intercourse, and the basic social form of its development. The city as a form of settlement has fixed in it the spontaneity of the mass intercourse of individuals and the spontaneity of social organization. For this reason, regional development under the conditions of intensification is closely associated with the task of managing urbanization, especially such an aspect of it as the formation of interconnected systems of city and urban settlement which form the basis of the overall spacial organization of the productive forces.

The development of such a system has to be carried out both within the framework of administrative territorial units and within the limits of territorial settlement structures themselves which form interconnected systems of populated areas on the local, regional, and social levels.

It is essential, in addition, to base this on those forms of settlement which would foster to the greatest extent the smoothing over of differences in the development levels of individual areas, and also between urban and rural localities, ensuring the maximum accessible diversity in the choice of places of work, services, and rest and, thereby, the fullest use of the regional conditions of intensification which are connected with the "human factor."

As has been shown by research and pre-planning work, especially on general and regional settlement schemes on the territory of the USSR, the most effective form of this kind of development of production and settlement is the creation of group systems of populated places above all in zones of the influence of very large and large cities, within the borders of a daily cycle of vital activity by the population of the corresponding urban agglomerations, that is, within a 1.5-2-hour zone of accessibility from the central city. The formation on such "contact territories" where "the possibility of daily personal intercourse... by all of the representatives of the active population objectively exist" [22] of developed subcenters of the group system (large interbranch production zones, scientific and technical and social-technical parks, socio-cultural centers) promotes an accel-

eration of scientific and technological progress and a rise in the vocational skill and cultural-educational levels of the labor resources. A single functional-spacial organization of group systems is also one of the preconditions for the centralization of resources for the development of the engineering-transportation infrastructure and the non-production sphere.

The interconnection between intensification and group settlement raises the question of the regional importance of large city centers in a new way. In the process of the formation of group systems the task of restricting the extensive growth of large cities is accomplished by means of an accelerated development of small and medium city-subcenters in the zones of their influence with the siting in them of specialized productions, and also branches of production and scientific production associations.

One of the conclusions of modern theory states that "the greater the progress which has been achieved and the higher the level of a country's economic development, the more important the human factor and human relations." [23] The responsibility of a region for the development of human productive forces determines therefore the central place of territorial systems in ensuring a changeover to intensive economic growth. Attempts to bring about the comprehensive development of the individual by making the functions of production cells more complex are based, in our view, on a serious underestimation of the problem. The practice of social planning for labor collectives has shown that a large number of issues involved in improving the way of life such as the development of general and specialized education, cultural and domestic services, public transportation, construction, the distribution of housing, and others cannot be effectively solved within the framework of an enterprise and branch, and require an overall organization on the scope of a rayon, city, oblast, and other territorial units.

However, the realization of an active role by territorial factors in the process of intensification is not achieved automatically: it requires the introduction of a number of changes both in theoretical awareness and in the very practice of regional management.

Below we shall attempt to outline some of these changes.

1. It is essential to have a new conception of a region which accords with the conditions of developed socialism and of the scientific and technological revolution. An adequate conception of a region as a developing population has to replace the one-sided resources and technical-production interpretations. Regional development appears here as a process of the realization of the life plans of a population on a given territory, and the management of it as the task of creating the optimal socio-spacial environment for the functioning of production and the development of the individual.

2. Urbanization appears as the basis of regional development understood in this way. It expresses in the language of socio-spacial forms the dynamics of the root structural characteristics of human activity, such as the degree of concentration, intensity, diversity. With urbanization is connected the formation of a

network of cities--the scaffolding of present-day regional systems. Therefore, only on the basis of an analysis of urbanization is it possible to correctly map out the strategic directions for improving the territorial organization of social production and settlement.

The recognition of the decisive influence of urbanization on the processes of territorial development demands a reorganization of regional analysis: a study of the concrete mechanisms of the intensification of economic activity and intercourse which takes shape under the conditions of an urban concentration of production and population has to be placed at the center of it. An analysis of the specific effects of this concentration (agglomeration savings and losses), an evaluation of the information potential of the urban environment, and a theoretical economic concept of city in the system of resources distribution form the first task of such a study.

3. There has to be a review of the "subject" structure of territorial analysis and of the concentration of attention on a few, chiefly primary and secondary branches of industry and, correspondingly, on "resource" territorial production complexes. It is not only a matter of the change in the structure of regional economics and the emergence of science, management, and a number of other non-production branches (with their special siting requirements) in the top places in the structure of an increase in employment. Much more important is that as scientific and technological progress turns into a chief factor of intensification the relations themselves in the regional structure undergo important changes. The scientific and technical, or, more exactly, the information (including the branches of culture and management) complex becomes the basic source of impulses for socio-economic and, this means, territorial development. Under these conditions a review is required for many of the existing ideas regarding the base and derivitive sectors of a regional economy and the methods of its formation and accelerated development.

4. The expansion of the industry and population of the largest cities into ever larger suburban territories is becoming a necessary consequence of scientific and technological progress. This direction (sub-urbanization) stands out as the general and invariable line of the progressive evolution of settlement with which regional policy has to be commensurate. The formation of large zones of intensive development (large group systems of populated places) is increasingly showing up as the chief direction of overcoming the socio-economic differences between town and country.

5. One of the consequences of urbanization is a strengthening of the inertial tendencies in the territorial distribution of increases in labor, capital, and information resources, which complicates the process of the equalization of levels of regional development.

An analysis shows that the attainment of this goal is corresponded to by an equality of by no means average, but differential, incremental characteristics of the effectiveness of mobile production resources in the state of an optimal equilibrium of the interregional system. In view of the real limitations upon mobility, this equality takes on the character of a remote goal; the task of bringing regional

economic characteristics closer together (optimal differentiation) comes to the forefront. This strategy has to take into consideration the existence of objective socio-economic mechanisms for the reproduction of the existing differentiation which are connected with the endeavor of economic subsystems to keep their distribution portions. The appropriate restrictions on an overcurrent of resources can be represented with the help of a "dynamic version" of the Pareto principle. We have in mind the fact that with economic growth the demand for a non-deterioration of social (regional) statuses is transformed into a criterion of the stability of distribution portions. Every change in inter-regional proportions in connected therefore with a definite break with developed priorities and requires, in addition to support from formed economic interests, their planned reorganization and a rise in the level of the real socialization of resources.

6. Under the conditions of intensification two interconnected subjects of regional analysis advance to the forefront: 1) Zones of accelerated economic development which take shape on the basis of large interbranch territorial production complexes and programs (the Kansk-Achinsk Fuel Energy Complex [KATEK], the West Siberian petroleum and gas complex, the territorial production complex, zones of influence of BAM, and others); 2) Group systems of settlement which are formed in zones of the influence of large city centers. The first type--regions of accelerated development--comprises the basis for the growth of the base branches of the economy and the formation of new socio-territorial population communities; the second--large group systems--is the support socio-economic hull of the most developed and urbanized parts of the country, a center for innovation and scientific-informational activity, and also the production base of areas which are being developed. The interconnected formation of these two types of regional structures is one of the most important elements of the management of territorial development under the conditions of intensification.

7. An essential change in the strategy of new development is connected with this. The development of these areas was for a long time subordinated to the Weber principle of the "successive laying on of strata." Today this traditional successiveness is being violated to such an extent that one can speak about a strategy of the "inversion" of the economic structure of regions of new development (an outstripping development of science, designing, experimental production, and also of the branches of culture and management). It is these branches of the regional scientific production complex which ensure a decisive economy of labor during the use of natural resources in extreme conditions. But this means that one of the consequences of intensification is the spacial concentration of the functions of new development in the largest economic and cultural centers of the corresponding regions, and a shift of the center of gravity from their developing outlying areas to the developing nucleus. This, and also the necessity for limiting the further growth of the Moscow capital complex results, in our view, in the advisibility of forming regional capitals, having in mind now not only the most important cities of Siberia and the Far East, but also the leading centers of the European part of the RSFSR, as well as the capitals of the union republics.

Thus, the process of intensification, by strengthening the social thrust of economic development, is leading to a substantial increase in the role of territorial planning and management. It is influencing all of the aspects of the territorial

plan, beginning with its general purpose. This purpose is the provision of the regional conditions for the intensification of social production by means of balancing branch demand for local resources, the outstripping development of the production and social infrastructures, and the development and introduction into practice of standards for the conditions of residents and civic improvements which are differentiated by regions and settlement forms.

In connection with the work experience on the general and regional settlement schemes on the territory of the USSR, the tasks of city development are arising in a new manner. The most important of them is an interconnected solution of the problems of production siting and settlement and a wider use of the factors of territorial concentration and specialization. The development of a territorial structure for production and scientific production associations, especially the siting of specialized branches of operating enterprises in the suburban zones of large cities and industrial centers, has to play a decisive role in this. Only on this basis, by making the corresponding changes in the system of territorial computation, planning, and management, is it possible to shift to the development of a new and progressive form of production siting and settlement--regional zones of intensive development (large group systems of populated places).

And, finally, the formation, on the basis of the integration of science and production and the development of territorial management of scientific and technological progress, of regional scientific production complexes as a progressive form of siting the productive forces and a factor in the territorial intensification of social production has to become an important direction in structural policy.

FOOTNOTES

1. This kind of participation is of fundamental importance for coordinating the economic production and social development of the territorial production complex. The latter represents a qualitatively new object of state management which connects the interests, resources, and purposes of a number of branches into a single socio-economic complex with the interests of the region. From the point of view of political economy, what is involved is one of the forms of the integration of the interbranch and territorial socialization of production.

2. The region is increasingly acting as an independent sub-system of the reproduction of population and labor resources which is determining an activization of the human factors of progress and of the possibility of substituting for the growingly scarce amount of labor power with its improving quality.

3. In order to realize this function it would be advisable to create special agencies at the oblispolkoms--long-term planning bureaus--which coordinate planning work on the siting of production, the development of the infrastructure, and the solution of ecological problems (on the model of the district territorial planning bureaus in the GDR), reserving for the oblast planning agencies the function of directing the current work of local branches.

4. The economical nature of such decisions is most often relative. As L.I. Brezhnev wrote, "a departmental construction policy only gives the illusion of economizing capital, sooner or later it turns into losses.... The lagging with housing, transportation, domestic services, and culture inevitably effected labor productivity and, this means, the growth of production." [9]

5. The question of the genesis of these functions and of demarcating the objects of territorial and programmed planning and management is examined in the article [16].

6. It follows from this, in particular, that a discussion of the problems of the economic mechanism does not have to be enclosed within the traditional (triangle): Gosplan-ministry-enterprise (association).

7. Here we are digressing from the economic-legal, and informational aspects of accessibility, an analysis of which has been performed by the Leningrad sociologist A.V. Baranov [18]. Interesting approaches to this concept are found in western literature, particularly in the so called theory of "public commodities."

8. As K. Marx wrote, "the development of an individual is conditioned by the development of all of the other individuals with whom he is in direct or indirect association." [5]

9. The universality of intercourse which is characteristic for the city becomes here an important precondition for genuine sociality and for overcoming alienation.

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KOMI ASSR ECONOMIC, SOCIAL ACHIEVEMENTS TOLD ON 60TH ANNIVERSARY

Moscow FINANSY SSSR in Russian No 9, Sep 81 pp 18-19

[Article by I. M. Gusarov, Komi ASSR Ministry of Finance: "The Komi ASSR--60 Years"]

[Text] In August 1921 the VTsIK [All-Russian Central Executive Committee] issued a decree that formed the Komi Autonomous Oblast within the Russian Federation. This legislative act was a most important event in the life of the Komi people, a significant date on the road to its rebirth and flowering. For the first time in their centuries-old history, the Komi people received national self-government, within the fraternal family of the Soviet peoples.

The Komi district was one of the poorly developed regions of Tsarist Russia and it could not be developed properly. Prior to the Revolution, 180,000 people lived there, over a vast territory of 415,900 square kilometers, equal in size to several European states. The population was administratively isolated and had no state nationality education of any kind. One salt works and three iron foundries were in operation. In the Vychegda River basin logging was carried on seasonally.

The Komis were engaged mainly in agriculture. The low level of it can be judged by data from the agricultural-equipment inventory of 1910. On 36,000 peasant farms there were 38,000 wooden and 195 iron plows. The primitive working equipment did not allow normal working of the soil or even slightly satisfactory harvests. The peasants lived half-starving, on bread, until the new harvest, and as a rule there was not enough. The chronic backwardness, the glaring destitution, and the nationality and social oppression strangled the Komi peasant. It was impossible to find work in the area. Thousands of Komi peasants went to Russia's industrial regions in search of work.

The North under the Tsars was a place of large-scale banishment. In 1980 more than a thousand political exiles languished in Ust'-Sysol'skiy Uyezd alone.

The Great October brought freedom to the Komi people and made it a member of free Russia, with equal rights, and it created the political prerequisites for the forming of national autonomy.

A number of documents have been preserved that show the personal participation of V. I. Lenin in developing the district's productive forces.

The Communist Party and the Soviet Government gave the development of the Komi Autonomous Oblast daily attention, helping it with specialists, materials, equipment and foodstuffs, and, from year to year, increasing capital investment in its economy. Growth in the volume of capital investment is marked by the cited data.

Years	Total, millions of rubles
1918-first half of 1941.....	174.0
1951-1955.....	534.4
1955-1960.....	934.7
1961-1965.....	1,585.0
1966-1970.....	2,778.0
1971-1975.....	4,055.5
1976-1980.....	5,898.3

The consistent Leninist nationality policy provided for an unforeseen pace in the establishment and development of the Komi Autonomous Oblast's economy. In 1936 it gave the country about 4 million cubic meters of timber--5.5 times as much as had been logged by the eve of World War I. The mechanization of logging was started. Bases for the wood-processing, coal, oil, food and other branches of the economy were established. The share of industry in the economy's gross output was raised to 75 percent.

Considering the successes achieved in all areas of social life, and meeting the desires of the Komi population, the autonomous oblast of Komi became an autonomous soviet socialist republic.

Production volume is growing at a fast clip. In comparison with 1913 it had increased 13-fold in 1940, 47-fold in 1950, 116-fold in 1960, 223-fold in 1970 and 391.8-fold in 1980.

The gigantic changes in our district are the result of the selfless labor of its people and the unselfish fraternal help of the Great Russian and other peoples of our country in the republic's economic and cultural development.

Industry has been growing especially tempestuously since 1940, when construction of the Pechora Railroad and the extraction of coal and oil were speeded up in Komi land. Today the Komi ASSR is a republic with a developed coal, oil, gas, forestry, wood-processing, pulp-and-papermaking, local, light, food and other branches of industry and a mechanized agriculture, and it is a republic of high sophistication.

"The Main Directions for the Economic and Social Development of the USSR's National Economy During 1981-1985 and During the Period up to 1990" calls for the development of the Syktyvkar Forest-Products Complex, one of the largest in Europe, which, by the end of 1985, will be producing 820,000 tons of paper.

The Komi republic's workers have successfully completed the 10th Five-Year Plan. During these years, industrial production volume increased 21.6 percent, and 157 million rubles' worth of output was realized above the plan. Five-year plans for the production and sale to the state of all types of agricultural output were coped with ahead of time.

After October the face of the republic's cities, workers' settlements and villages changed radically. Huge successes were achieved in social and cultural development. In 1914 there were 309 elementary schools here, where 500 teachers taught 14,200 pupils, that is, less than half of the children of school age, only 20-30 percent of them finishing elementary school. Only a fourth of the population could sign their names or barely read. Now the republic has 535 general-education day schools. Most of the schoolrooms and workshops have been fitted out, and technical training aids are widely used. The number of teachers exceeds 10,000. In the 1932-1933 school year there were 163 students in all in the republic's first vuz--the Komi State Institute. Now the Syktyvkar State University imeni 50-Letiya SSSR, the Komi State Pedagogical Institute, the Ukhta Industrial Institute, the Vorkuta Branch of the Leningrad Mining Institute, and the Syktyvkar Branch of the Leningrad Forestry Engineering Academy are training workers in more than 30 specialties. We have 18 secondary specialized training institutions and 43 PTU's [vocational and technical schools], and each year they give production facilities about 10,000 skilled workers. A broad network of children's preschool institutions has been established. In 1927 there were 51 in all, with 1,500 children. Today 96,200 kids are being educated in 1,022 kindergartens.

Public health was in an even worse condition. Epidemics raged in the prerevolutionary Komi village. Of every 100 children born, 60-70 died. In many villages as much as 70 percent of the population suffered from trachoma. Over the expanse of Komi land, 7 hospitals for 147 beds, 7 receiving rooms and 37 paramedic and midwife centers were in operation, and 5 physicians and 13 medical assistants served them. Expenditures on public health consisted of 128,000 rubles, or an average of 50 kopecks per capita. Now we have at our disposal more than 145 hospitals, 634 outpatient polyclinic institutions and paramedic-midwife centers. During the last five-year plan alone, hospitals for 2,170 beds and polyclinics for 3,550 outpatients per shift were built. More than 3,800 physicians of all specialties and more than 15,200 medical assistants were at work.

A broad network of institutions for science and culture has been created during the years of Soviet power in the Komi ASSR. More than 1,600 scientific workers, including 450 doctors and candidates of sciences, are at work in 19 scientific institutions. The Komi Branch of the USSR Academy of Sciences is a standard-bearer in its own right.

The inner life of the republic's workers is rich. The inventory of the 493 large-scale libraries exceeds 7.5 million copies of books and magazines. There are 557 clubs, 690 cinemas, 4 theaters and a republic philharmonic orchestra in operation. Here is how expenditures from the Komi ASSR budget have been distributed for social and cultural measures:

	Expenditures (thousands of rubles)			
		Breakdown		
Year	Total	Education	Public health	Social amenities
1940	6,005	4,194	1,582	228
1950	19,225	13,258	5,468	499
1955	22,859	14,815	7,382	662
1960	45,160	30,175	13,787	1,198
1965	71,275	49,449	19,742	1,864
1970	133,461	73,600	57,296	2,417
1975	166,424	91,005	71,815	3,399
1980	208,620	110,693	92,476	5,179

The Komi republic's finance workers, along with all workers, are also making their contribution to development of the republic's economy and culture. Financial organ collectives have assumed higher socialist commitments to seek out additional reserves for better implementation of the budget during the anniversary year.

The Komi ASSR budget has been met successfully for many years. During the 10th Five-Year Plan 4.3 billion rubles--46.9 percent more than during the Ninth Five-Year Plan--were mobilized for the budget's income. This enabled a sound financial base to be created, not only to finance the required measures on time and with completeness but also to send an additional 30.6 million rubles to development of the republic's economy and culture. The income portion of local budgets has been greatly strengthened. While in 1975 the total amount thereof reached 182 million rubles, 5 years later the figure was 257.6 million. Each year the income portion of the budgets of cities, rayons, settlements and agricultural communities has been met.

Successful fulfillment of budget income depends greatly upon the search for additional reserves and the quality of the economic analysis of the annual accounting reports and balance sheets of the associations and enterprises. In examining the annual reports and sheets for 1980, the republic's finance-organ workers increased payments into the budget by 6.7 million rubles. Good results were achieved by the finance sections of Ukhta (3.5 million rubles), Vorkuta (1.6 million rubles) and Pechora (1.1 million rubles). Senior economist of the state-income section of the Ukhta gorfo [city finance office] L. M. Kornyush, who mobilized 1.95 million rubles for the state budget, chief of the state-income section of the Vorkuta gorfo G. V. Ankukhin, who mobilized 1.142 million rubles, and senior economist of the Pechora gorfo R. I. Bobkov, who mobilized 950,000 rubles, should be especially noted.

Ahead in the socialist competition are the Inta gorfinotdel [state finance section] (the manager is L. P. Myasnikova), the Usinsk rayfinotdel [rayon finance section] (V. I. Bogachev) and the Vorkuta gorfinotdel (I. V. Guminskiy).

The motherland has assessed highly the contributions of the republic's workers toward the building of communism. Orders of Lenin, the October Revolution and People's Friendship have been awarded for great successes in developing the Komi ASSR's economy and culture.

Komi ASSR finance workers are persistently driving for successful fulfillment of the tasks of the first year of the 11th Five-Year Plan, and they are giving the 60th anniversary of the republic a worthy greeting.

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KRYMSKAYA OBLAST'S ECONOMIC FEATS, NEW GOALS DESCRIBED

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 8, Aug 81 pp 3-10

[Article by Yu. Bakhtin, chairman of the Krymskaya Oblast Ispolkom: "The Crimea Today and Tomorrow"]

[Text] Krymskaya Oblast is an economic complex of many branches that is marked by a high level of economic development of the area, by developed branches of the material-production and services spheres, and by the presence of substantial and widely used natural resources, and it has adequate labor resources. The oblast includes 4.5 percent of the republic's territory and 4.4 percent of its population. Gross output of industry and agriculture are, respectively, about 3.6 percent and 5.3 percent of the republic's totals.

Industry is represented by enterprises of machinebuilding (shipbuilding and ship repair, agricultural machinery and spare parts therefor, industrial equipment for the food industry, building-materials production, and others), ferrous metallurgy, the chemical and electronics industries, light industry, and the food industry. In total amount of industrial output, 41.6 percent is the share of the food industry (including 10.5 percent for fisheries and 13.5 percent for viniculture), 27.7 percent for machinebuilding and metalworking, 6.7 percent for the chemical industry, and 7.4 percent for light industry. The oblast produces ships and floating cranes, iron ore and fluxes, machinery and instruments, cement, wall and facing materials, fish, canned fruit and vegetables, wine and wine products, tobacco and essential-oil products.

The output of Crimean shipbuilders is widely known, including supertankers of the "Krym" type, with displacement of 182,000 tons, and of the "Pobeda" type, with displacement of 80,000 tons, the first of which was launched on the eve of the opening of the 26th Party Congress. These tanker series are the latest word in shipbuilding. The Sevastopol' Marine Shipyard imeni S. Ordzhonikidze has mastered the output of the specially built "Vityaz'" floating crane, which has a load-lifting capability of 1,600 tons.

The output of chemicals--soda ash and disodium phosphate-for feed additives for livestock-raising rations, is increasing. Many of the country's republics are receiving output from the plants that manufacture electrical machinery, the Prodmash Plant imeni Kuybyshev, Sel'khozdetal' plants, plants of the Pnevmatika association, and other plants.

The output of industrial enterprises enjoys great demand in the international market; 35 countries are buying it. This includes all the countries of socialist collaboration, as well as England, France, Canada, the FRG, Italy, Japan, and other capitalist and developing countries. "Kometa" and "Voskhod" type diesel-equipped hydrofoil boats, heavy floating cranes, sports and industrial boats, automatic transfer lines and automatic machinery for the food industry, television sets, and products of the food, chemical and other industries are sent for export.

The oblast's industry was greatly developed during the 10th Five-Year Plan. The five-year plan for total industrial production volume was carried out 102.1 percent and 100 million rubles' worth of output above the plan was sold. Output increased 16.2 percent over 1975. The branches of industry that determine technical progress were developed at an outstripping rate. Machinebuilding and metalworking output rose by 48 percent, and the output of chemicals increased by 35 percent.

In the vanguard of socialist competition during the five-year plan were laboring collectives of the oblast's leading enterprises--the Sevastopol' Maritime Shipyard imeni Ordzhonikidze Association, which was awarded the challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee twice during the five-year plan, the Simferopol' Electrical Machinery Manufacturing Plant, the Kerch' Shipbuilding Yard Zaliv imeni B. Ye. Butoma, the Simferopol' Clothing Factory imeni N. K. Krupskaya, the Yalta Fisheries Combine imeni 25 S"yezda CPSU, the Saki Chemical Plant imeni 50-Letiya Sovetskaya Ukraina, and many others.

Advanced production workers and innovators achieved high production indicators. Among them were delegates to the 26th CPSU Congress and 26th Ukrainian Communist Party Congress V. N. Borisova, knitter of the Feodosiya Hosiery Factory, who carried out more than two personal five-year plans, brigade leader of shipbuilding workers of the Zaliv Shipyard D. I. Zababuro, electrical installer of the Parus Instrumentmaking Plant at Sevastopol' L. D. Kucherenko, garment-machine mechanic of the Yevpatoriya Clothing Factory M. N. Kvitko, and others. The number of production innovators and advanced workers increased greatly.

A rise in labor productivity in industry during the 10th Five-Year Plan was caused by the introduction of new equipment, the mechanization and automation of production processes, improvements in the forms for organization and incentives for work, and a strengthening of labor discipline. In 1976-1980, 443 mechanized flow lines and automatic lines were put into operation, 224 departments and sections were converted to integrated mechanization and automation, and 4,752 units of production equipment were modernized. Inventors and rationalizers are making a great contribution to scientific and technical progress. During the five-year plan an economic benefit of more than 211 million rubles was obtained from the use of 153,000 rationalizers' suggestions.

The oblast's party, soviet and economic organs paid great attention during the last five-year plan to questions of raising output quality. An integrated system for output quality control was introduced at 231 enterprises. This enabled the share of output with the State Emblem of Quality to be increased to 12.8 percent of total production volume, versus 1.8 percent in 1975. At the start of 1981, 91 of the oblast's enterprises produced 712 products of the highest quality category, including 638 types of consumer goods. The collective of the Simferopol' Electrical Machinery Manufacturing Plant achieved high results in raising output quality. Here

82.9 percent of all output is of the highest quality category. The number of enterprises that have output of this category is more than half of the total. These include the NPO [Science and Production Association] Pnevmatika (73.6 percent), plants for building winemaking machinery (54.6 percent), the Perekopsk Bromine Plant (50.5 percent), the Prodmash Plant imeni Kuybyshev (51.1 percent), the Nizhnegorskiy Oil Mill (51 percent), the Alushta Food-Flavoring Factory (59.2 percent) and the Foton Association (53.6 percent).

It should be noted that the introduction on 1 January 1981 of a procedure under which food-industry output, in which 41.6 percent of our industry is engaged, is not certified for the Emblem of Quality, violates the comparability of the results achieved, especially in summing up the results of the work of cities, rayons and oblasts. Obviously, it makes sense to determine the share of such output not in the total production volume but in the output volume that is subject to certification. TsSU [Central Statistical Administration] organs should think about this.

At the 26th CPSU Congress L. I. Brezhnev named the production of consumer goods as the party's primary concern. For us this question has special importance, since it is necessary to think not only about satisfying the requirements of the populace of the oblast but also the needs of the people who come here for recreation and therapy. It is especially important to satisfy the requirements for daily commodities, health-resort needs and souvenirs. The question of expanding the production and variety and improving the quality of consumer goods was put on the agenda of a session of the oblast soviet of people's deputies in September 1977. The session's decisions became a program for our work during the 10th Five-Year Plan. Definite results have been achieved.

State capital investment in the amount of 197 million rubles has been assigned to the construction and rebuilding of enterprises that produce consumer goods during the five-year plan. The clothing factory and meat combine in Kerch', new capacity at the Plastmass plant, a household-chemicals plant and the Santekhprom plant in Simferopol', a plant for producing nonalcoholic drinks in Yevpatoriya, the cannery in Dzhankoye, dairies in Krasnoperekopsk and Feodosiya, the urban-type settlement of Sovetskiy, and other facilities were built or rebuilt. During the five-year plan the output of industrial and foodstuff commodities increased 16.2 percent, commodities for cultural and domestic-amenity purposes 1.6-fold, and light-industry products 19.9 percent.

As a consequence of the outstripping growth of consumer-goods production, their share of total volume rose from 38.6 percent in 1976 to 39.9 percent in 1980.

Good things can be said about many laboring collectives. The output of consumer goods at the Kerch' Metallurgical Plant imeni Voykov increased 1.6-fold during the five-year plan, and it has now reached 92 million rubles' worth per year. The collective promoted socialist competition for maximum output of products of the highest quality at each workplace. Right now 15 types of steel enamel utensils are being produced with the Emblem of Quality. The plant's output is being sent to all the country's republics and is being exported.

During the five-year plan the Foton Association mastered the production and began to produce five models of color television sets and a basically new black-and-white set. The work of the collective of the Yalta Fisheries Combine was crowned with a high government award—the Order of the Emblem of Honor. During the last five-year

plan this enterprise produced 3,167,000 standard-equivalent cans of food, 2,043 tons of fish products, and food products worth more than 4 million rubles above the plan. Labor productivity increased 4.8 percent over the five-year plan goal. The combine was awarded the Diploma of the AUCCTU and USSR Gosstandart [State Committee for Standards] for achievement of the best quality indicators in the branch.

It is impossible to satisfy the public's requirements for goods in large-scale demand without involving in this matter all the enterprises within the oblast, regardless of their subordination or production profile. Support was given for this in 26th CPSU Congress decisions. We have created in the oblast a commission of the oblast ispolkom on questions of developing group B industries, which is now in operation. In using the powers granted to the soviets, we have persuaded a number of enterprises and agencies to change their attitude toward this important matter. Standing commissions of soviets of people's deputies are concerned with questions about increasing consumer goods production systematically. Recently, at a session of the budget-planning commission of the oblast soviet of people's deputies, reports of the management of the Cannery imeni S. M. Kirov and the Simferopol' Confectionary Factory about the fulfillment of plan tasks on consumer goods production and increasing the quality thereof were heard. During the preparations for and during the discussion serious deficiencies were found, and concrete recommendations were made for eliminating them.

But still not all reserves and opportunities have been used. This work must be continued with enterprises of USSR Minkhimprom [Ministry of Chemical Industry], USSR Minstankoprom [Ministry of Machine Tools and Tool Building Industry], USSR Minavtoprom [Ministry of Automotive Industry], and certain other enterprises.

During the 11th Five-Year Plan the output of industrial products will be increased by about 490 million rubles' worth per year. The task is complicated, but we shall solve it on the basis of intensified production, the use of scientific and technical progress in every possible way, and better quality of work.

A prerequisite for developing all branches of the oblast's economy is further expansion of the capacity of the fuel and energy complex. By the end of the five-year plan it is planned to increase the generation of electricity by 48.5 percent and to introduce into operation in 1985 the first power unit of the Krymskaya AES, with a capacity of 1 million kilowatts. With introduction of a second unit of the station during the 12th Five-Year Plan, the oblast's entire requirement for electricity will be provided for through its own generating facilities.

A second area in power-engineering is the mastery of natural energy resources. Further exploration and development of the facilities of the natural gas fields in the water area of the Black Sea and the Sea of Azov is planned. Gas recovery will grow 4.5-fold during the five-year plan.

Substantial capital investment will be aimed at reequipping enterprises that produce consumer goods. A brewery, bakery and clothing factory in Simferopol', a department for dekol' and the output of higher quality enamelware at the Plant imeni Voykov in Kerch', and a number of enterprises of the processing branches of industry are to be introduced into operation.

During the 11th Five-Year plan the production of consumer goods will grow at a faster pace. The output of the food, winemaking, fisheries, canning, meat and

dairy industries will increase by 13-15 percent. Production by heavy and light industry enterprises will increase in volume.

In order to carry out the increasing amounts of capital construction, the capacity of construction-industry and building-material enterprises will be increased.

The oblast has a developed agriculture. Since the March 1965 CPSU Central Committee Plenum, fixed capital for agriculture has risen more than 4-fold, power-engineering capacity more than 3-fold, and the irrigated-land area has been enlarged. The yield of grain crops increased from 15.9 quintals per hectare in 1961-1965 to 27.9 quintals per hectare during the 10th Five-Year Plan, vegetables by 68 quintals per hectare, fruits and berries by 30.6 quintals per hectare, and milk yield increased by 919 kilograms per head. During the indicated period the production of grain increased 1.5-fold, sunflower seed 1.8-fold, vegetables 2.2-fold, fruits 5-fold, meat almost 3-fold, milk 2.2-fold and eggs 5.5-fold.

During the 10th Five-Year Plan systematic execution of the party's program to convert agriculture to a modern industrialized base and to strengthen kolkhozes and sovkhozes economically continued. Earmarked for development of the oblast's agriculture was 1.9 billion rubles. Irrigated land in the amount of 52,400 hectares was introduced, and the power-worker ratio at kolkhozes and sovkhozes increased 43 percent. During the 5 years they were furnished 8,394 tractors, 4,723 trucks, 3,388 grain-harvesting combines and much other agricultural equipment. All this has enabled the dependence of agricultural production on weather to be reduced. Despite 3 years with unfavorable weather for growing crops, the yield of grain increased by 2.7 quintals per hectare, including corn by 15.1 quintals, vegetables by 21 quintals, and root crops by 226 quintals per hectare.

Average annual gross agricultural output increased 14.2 percent and labor productivity rose 12 percent over the Ninth Five-Year Plan. The oblast carried out the state plan for purchases of vegetables, potatoes, essential-oil raw materials, meat, milk, eggs and wool. Quality indicators rose.

These achievements were based upon strenuous work and rising skills of the land-tillers, the wide introduction of socialist competition to achieve higher yields, and the raising of livestock productivity. Responding with actions to the party's and government's concern about strengthening and developing agricultural production, many advanced workers and laboring collectives achieved high goals.

For many years, Krasnogvardeyskiy Rayon farms have been providing a high level of animal husbandry output. Under the last five-year plan, meat production in the rayon increased 1.5-fold, milk 18-percent, eggs 13 percent and wool 29 percent. Goals for sales of these products to the state were greatly overfulfilled. The creation of a strong feed base, in which increased soy-bean production played no small role, helped to solve these tasks. The yield of this crop here during recent years has been 15-16 quintals per hectare. It should also be noted that for the oblast as a whole, soybeans occupy an increasingly notable place in the structure of planting, helping to solve the problem of a shortage of albumin in livestock rations. This year it is to grow by 22,000 hectares. Teams of soy-bean growers under I. A. Golubenko and A. N. Barkhatov from the Rossiya Kolkhoz of Krasnogvardeyskiy Rayon and D. S. Taran's Brigade from Kolkhoz imeni Krupskaya of Nizhnegorskiy Rayon are obtaining 34-36 quintals per hectare of soy beans. Thirty-nine teams have committed themselves to obtaining a yield of 24 quintals of soy beans per hectare this year.

Advanced corn growers are making a meaningful contribution to strengthening the feed base. Last year, despite the unfavorable weather, 73 mechanized teams gathered more than 100 or more quintals of grain corn per hectare. In 1981, 191 teams are now struggling through this harvest. The area sown to corn that is cultivated under industrialized technology has been brought up to 40,000 hectares.

Many farms can be named that are attaining high results by using equipment and irrigated land skillfully and by improving agricultural technology. The collective of Kolkhoz imeni Voykov of Nizhnegorskiy Rayon was recently awarded the Order of Labor Red Banner. During the 10th Five-Year Plan the kolkhoz's agriculturalists increased grain yields by 12 quintals per hectare, and produced 17,000 tons of grain above the goal. The average annual production of vegetables, potatoes and fruit grew substantially. From each irrigated hectare, 72.8 quintals of grain were obtained, including 79.2 quintals in the case of commodity corn, and 1,514 quintals of root crops for feed. The kolkhoz achieved the designed yield for all the crops raised and overfulfilled the economic plans of the 10th Five-Year Plan for sales to the state of grain, sunflower seed, vegetables, meat, milk and eggs.

The challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee with the commemorative emblem, "For high effectiveness and quality of work during the 10th Five-Year Plan," was handed to the collective of the Order of Lenin Yuzhnaya Poultry Factory. A high level of sophistication in cropping and in animal husbandry was attained here. The average annual grain yield during the five-year plan increased by 7.2 quintals per hectare, while gross grain output increased 43.3 percent. Last year 238 eggs were obtained per layer, and the 1980 and five-year plan goals were met ahead of time as a whole for sales to the state of grain, eggs, milk, meat, wool and fruit. During the last five-year plan the collectives produced an average of 575 tons of meat and 286 million eggs per year.

The development of the foodstuffs program for the oblast has been completed now. Its bases are the development of the oblast's whole agricultural-industry complex and the further intensification of agricultural production. Among the numerous areas of intensification of agricultural production in the oblast, the main one--the development of irrigated cropping--should be noted. These data indicate the fruitfulness of this work: irrigated land now makes up about 18 percent of the total area of arable land but yields about 50 percent of all gross agricultural output, including 93 percent of the vegetables, 77 percent of the fruit, 79 percent of the root crops used for feed, and 25 percent of the grain. In 1980 an average of 1,107 rubles' worth of output was obtained per irrigated hectare, compared with only 280 rubles' worth per unirrigated hectare of farmland. As before, the oblast will pay much attention to land reclamation. It is planned to introduce into operation during the 11th Five-Year Plan 50,000 hectares of irrigated land, to rebuild irrigation systems for 17,000 hectares, and to improve them for 38,000 hectares. It is planned to increase agriculture's gross output by 12 percent and to bring grain production up to 2.1 million tons.

The solution of these tasks will require the enlistment of all existing reserves, and, above all, a rise in the utilization effectiveness of irrigated land, the achievement thereat of the designed yield of all crops, the wide introduction of industrialized technology, and implementation of the program for raising soil fertility. These measures have been reflected in the foodstuffs program. I would like to add that, in order to execute them successfully, deliveries to the oblast

of mineral fertilizer, plant-protection chemicals, trucks, tractor trailers and grain and ensilage harvesting combines must be increased, and there must be more capital investment for creating a modern supply and equipment base for the agricultural-chemical service.

Large amounts of capital construction are being conducted in the oblast. During the last five-year plan alone, 4.7 billion rubles of capital investment, from all sources of financing, including the funds of kolkhozes and of the populace, were directed toward development of the national economy. More than 2.5 billion rubles' worth of construction and installing work were done. In distributing capital investment, preference was given to the rebuilding and reequipping of existing enterprises and departments, including farm livestock departments, and a number of new items of production capacity and facilities for industry and agriculture were constructed. New capacity for the production of iron ore and limestone flux, iron castings and tractor trailers, the Sharkhinskiy Crushing and Grading Plant, and other facilities were introduced into operation.

The provisioning of civic amenities for the oblast's cities and communities continues. Much attention has been devoted to the development of municipal services. Questions of water supply, sewerage systems and preservation of the environment are of paramount importance for us. The Isobil'nenskoye and Zagorskoye reservoirs for water supply for Alushta and Yalta, water mains and purification structures in Kerch' and Yalta, and sewerage systems in Simferopol', Yalta, Feodosiya, Yevpatoriya, Dzhankoye and Belogorsk were put into operation, and more than 80,000 apartments have been equipped for gas. Housing totaling 4,439,000 square meters in area, schools for 50,800 pupils, hospitals for 2,911 beds and a number of other facilities of the services' sphere were built during the five-year plan.

The experience of the oblast's party organizations in expanding the network of children's preschool institutions was approved by the Ukrainian Communist Party's Central Committee. In May 1976 the task of building 255 preschool institutions for 50,000 children during the 10th Five-Year Plan was set at a plenum of the Oblast Committee of the Ukrainian Communist Party. The selfless work of builders, installers, designers and building-materials industry workers, along with the clients, brought good results. In 1976-1980, 260 kindergartens for 51,400 children were put into operation. While in 1950 we were bringing up 14,200 children at kindergartens and nurseries, in 1960 the number was 40,200, and by the start of the current year 1,137 institutions for preschoolers were operating, in which more than 150,000 children were being brought up.

The new kindergartens were built in accordance with improved designs, are rated as of good and excellent quality, and are distinguished by rational layout and a high level of utilities and services equipment. Work shops and play areas have been created at them, and in some of them are swimming pools and winter gardens.

Large amounts of construction are also called for during the 11th Five-Year Plan. An increasingly higher pace of growth of capital investment in the development of agriculture, power engineering, gas service, and the food industry, as well as of all other branches of the economy that produce consumer goods is planned.

Many funds are being allocated for the construction of production and nonproduction facilities for agriculture, including construction of the second phase of the North Crimean Canal. Simultaneously with construction of the Saki branch of the canal, work has started on the Mezhgornyy reservoir, in concert with water-supply

structures for Simferopol', Sevastopol', Yalta, Yevpatoria and Saki. Simferopol' is to receive 50,000 cubic meters of water in 1985.

Work will continue during the 11th Five-Year Plan on the erection of kindergartens and nurseries. Experience gained by the builders during the preceding five-year plan will serve us in good stead during the construction of these institutions.

Special attention will be paid to the development of the network of public-health institutions, and during the five-year plan the network should be expanded by 6-8 percent. The current five-year plan will be a five-year plan for the accelerated development of the Crimea's public-health institutions.

Many funds are being directed to development of the oblast's economy. Our task consists in using these funds thriftily, with the greatest yield. Many of the oblast's construction organizations are working fruitfully in this direction.

The collective of the Simferopol' Housing Construction Combine has achieved good indicators. In 1976-1980 it built and turned over for operation 413,300 square meters of housing, 10,500 square meters of it above plan. During this period construction and installing work volume increased 1.8-fold and labor productivity grew by 35.5 percent. Of this work, 97 percent of it was performed by the brigade-contract method. The housing-builders' work has received the highest evaluation. For a second year in a row the collective was awarded the challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee and the commemorative emblem, "For high effectiveness and quality of work during the 10th Five-Year Plan, with recording on the All-Union Honor Plaque at the VDNKh SSSR [Exhibition of Achievements of the USSR's National Economy]." The collective of the Bakhchisaray's Stroyindustriya combine was awarded the same banner.

The plan for 1981 called for capital investment to grow by 5.5 percent, or by 37 million rubles, and for the introduction of fixed capital to grow by 16.4 percent, or by 100 million rubles. Thus an outstripping introduction of fixed capital and a reduction in uncompleted construction are being provided for. The task of bringing it down to the established norm has been set for 1983.

During the current five-year plan we are also to be involved seriously with other questions of improving construction work. The main ones are to prevent the dispersion of funds and resources, increase the capacity of large-panel housing construction, and introduce more widely the brigade form of organization and labor incentives, which are still being introduced too poorly in some organizations--Perekopkhimstroy [Trust for the Construction of Chemical Industry Enterprises at Perekopsk], Krymvodstroy [Trust for the Construction of Water-Resourses Facilities in Krymskaya Oblast] and Krymkanalstroy [Administration for the Construction of Canals in Krymskaya Oblast].

Health resorts, which recently observed their 60th anniversary, are a specific branch of the national economy. On 21 December 1920--a few weeks after the liberation of the Crimea from the White Guards--a decree of the Soviet of People's Commissars on Use of the Crimea for Medical Treatment for Workers," was published and signed by V. I. Lenin. Since then the Crimea's health resorts have been transformed into a high-capacity base for a workers' health industry. The diverse character, the wonderful climate, the sea's beaches, the curative muds, the mineral

springs, the natural landscape and the historic monuments attract to the Crimea not only the country's workers but also foreign tourists.

Nowadays 6-7 million come to the Crimea annually for rest and treatment. At their service is a wide specialized network of health resorts that numbers 360 units, including 123 sanatoria and guest-houses with medical treatment, 79 vacation centers and guest houses with medical treatment, 24 tourist centers and hotels, and 150 recreation centers.

During the Ninth and 10th Five-Year Plans new, notable health resorts appeared, such as the Sanatorium imeni M. N. Burdenko in Saki, the Primor'ye, Poltava and Zolotoy Kolos Sanatoria, and new buildings of the Zaporozh'ye, Orlinoye Gnezdo and Yasnaya Polyana sanatoria and of the Goluboy Zaliv and Miskhor guest houses. Among the new construction is a resort polyclinic for 1,500 outpatients per day at Miskhor, modern therapeutic baths in Yevpatoria, mineral-water pump rooms at Moynaki and the Voskhod Sanatorium, a dietetic dining room that seats 1,000 in Saki, and many other facilities.

The Crimea is also known as a children's health resort. In recent years, an association of sanatorium-type Pioneer camps, Yunyy Leninets, went into operation, where more than 1,600 youths simultaneously vacation, are treated and are taught. In recent years the mode of recreation and treatment of parent along with the children has become widespread--and this is being applied at the best health resorts of the Crimea.

Much is also being done in the area for preserving the environment and for a rational and thrifty attitude toward nature's riches. However, there are also serious deficiencies. The work to preserve the air basin and to improve the reclamation situation and to make rational use of underground water require a more concrete approach. These deficiencies were pointed out to us at a session of the Commission of the Ukrainian SSR Supreme Soviet for Nature Conservation and Making More Rational Use of Natural Resources, where our report on this important question was heard. We have drawn the necessary conclusions from this criticism. A concrete program of actions to improve nature-conservation work was planned at the session of the oblast soviet of people's deputies in June.

Health resorts will also be developed at an accelerated pace during the 11th Five-Year Plan. The development of resorts and an increase in the number of individual vacationers require proportional development also of the "associated" branches of the economy, that is, those that operate to serve the public: shopping, domestic services, transport and municipal services, as well as construction-industry bases.

The governments of the country and of the republic pay constant attention to the development of resorts. In carrying out their decisions, much work is being done to make civic improvements for resort-wide facilities and improve the reception of and services for the citizens who arrive for relaxation and treatment. And the local soviets are performing these tasks as their financial and material potential permit--all the developed spheres of services have been aimed at satisfying the requirements not only of the population but also of the Crimea's guests.

During the Ninth Five-Year Plan the retail commodity turnover of state and cooperative trade increased by 24.4 percent, and its supply and equipment base has been greatly strengthened. New construction includes a cold-storage and fruit center in

Yevpatoriya, an industrial base and vegetable storage in Kerch', a trade and procurement center in Alushta, fruit centers in Simferopol' and Feodosiya, and a number of modern self-service department stores and other stores.

Much was done during the last five-year plan to develop social dining open to the public and to organize dining for workers at industrial enterprises and construction projects and transport and for pupils of lower and secondary schools and tekhnikums and students of institutions of higher learning.

Domestic services volume increased by 36 percent during the five-year plan, and more than 70 new types of services were introduced. The network of domestic-services enterprises rose by almost 150 units. Centers for domestic services were built and put into operation in Simferopol', Kerch' and Dzhankoye. Premises for 30 rural domestic-services centers, based on 276 workplaces, were built by personnel of kolkhozes and sovkhozes or the premises were allocated by the farms. The domestic services centers at the Druzhba Narodov Kolkhoz of Krasnogvardeyskiy Rayon and the Simferopol'skiy Sovkhoz of Simferopol'skiy Rayon, the integrated receiving centers at the Starokrymskiy Sovkhoz of Kirovskiy Rayon and Geroy Sivasha Sovkhoz of Krasnoperekopskiy Rayon and many other centers are operating in spacious and comfortable premises.

The goals that have been achieved and planned are high, it would seem, but for the complete satisfaction of the requirements of the populace and vacationers they are not adequate. It seems that the appropriate republic ministries and agencies should participate in solving these problems. Meanwhile, UkSSR Mintorg has not provided for the construction of facilities that have been called for: a shopping center in Alupka, a department store in Gurzuf, a fruit and vegetable store and the Massandra Restaurant in Yalta, the Detskoye Cafe in Yevpatoriya, dining halls in Gurzuf, Koreiz, and Simeiz, a general-commodity warehouse in Yalta, a vegetable center in Simeiz, and other facilities. UkSSR Minbyt [Ministry for Domestic Services] has not built domestic-services centers in Yalta, Alushta, Koreiz and Malorechenskiy, a bathhouse in Feodosiya, and other facilities. We do not have enough palaces of culture and hotels in the resort cities, or parking places for cars.

I would like especially to note the low pace of development of car and truck transport that is planned for the 11th Five-Year Plan--it does not correspond to either the rate of growth of the economy of the oblast as a whole or to the development of the resorts. Minavtotrans [Ministry of Motor-Vehicle Transport] should find opportunities for eliminating these disproportions.

And there is still another important question. Such a complicated and ramified branch as health resorts cannot be managed unless there is a single managing organ in the oblast. For the most diverse questions have to be solved: the integrated development of the resorts and a unified engineering policy for construction, and also problems connected with the inadequacy of labor resources, the provisioning of foodstuffs and housing, and many other things. Right now there is in practice no such organ. About 25 percent of the medical-treatment and vacationing institutions are under the regional trade-union administration, the rest are under more than 40 ministries and agencies. The situation clearly is abnormal. The time has come when the question of creating offices endowed with the appropriate powers under the oblast ispolkom and the ispolkoms of the resort cities should be faced.

Like the whole Soviet people, workers of the twice-decorated Crimea have greeted 26th Party Congress decisions with a feeling of deep satisfaction. With their whole hearts they approve as a whole and completely the program for the further advance along the path of building communism and of continuing the search for and study of existing reserves and potential that the congress contemplated. They are proud of the fact that their modest labor has received a high assessment by the motherland. At the end of the five-year plan, on the eve of the Krymskaya Oblast Party Congress (the second one during the five-year plan), the Bakhchisaray-skiy and Simferopol'skiy Rayons and 12 collectives of enterprises and farms were awarded challenge Red Banners of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee, and four of these enterprises were given the commemorative emblems, "For high effectiveness and quality of work during the 10th Five-Year Plan," with recording on the All-Union Honor Plaque at the VDNKh SSSR.

The 26th CPSU Congress gave the Soviet people a powerful charge of spirit and energy and stimulated an enormous political and labor upsurge. Our main task consists now in directing this upsurge to practical affairs, to fulfillment of the tasks for the first year of the 11th Five-Year Plan. The results of the first quarter indicate that the start is not bad. Plan tasks in most branches of the oblast's economy were overfulfilled.

The preservation and strengthening of the pace that has been achieved will enable the tasks set by the 26th CPSU Congress and the 26th Congress of the Ukrainian Communist Party to be solved.

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